Volume 42 • No. IV • January 2017

ISSN 2230 9241

RESEARCH BULLETIN

www.icmai.in

The Institute of Cost Accountants of India
(Statutory body under an Act of Parliament)

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The CMA professionals would ethically drive enterprise globally by creating value to stakeholders in the socio-economic context through competencies drawn from the integration of strategy, management and accounting.

Vision Statement

The Institute of Cost Accountants of India would be the preferred source of resources and professionals for the financial leadership of enterprises globally.

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Price of Single Copy: ₹ **400.00** only
Annual Subscription (for four volumes): ₹ **1200.00 p.a.**
Courier Charges: ₹ **200.00 p.a**. for four volumes
Month of Publication: **January, 2017**

Printed and Published by
CMA Avijit Goswami
Chairman - Research, Journal & IT Committee
The Institute of Cost Accountants of India
12 Sudder Street, Kolkata 700016

Foreword

"A research journal serves that narrow borderland which separates the known from the unknown."
- Prasanta Chandra Mahalanobis

Greetings and best wishes of New Year !!!

It is my pleasure to present before you the Research Bulletin, Vol.42, No. IV, January 2017 issue. It is an exemplary Research journal consisted of articles of blazing issues on Microfinance, Banking, Cost Management, Securities Markets, Goods & Service Tax (GST), etc.

Microfinance in India has come a long way. It started as an alternative source of finance to the masses encompassing the bottom of the socio-economic pyramid and gradually turned out to be a tool for elevating their social standard and working their way out of poverty. The Microfinance institutions have helped millions of small households in the most remote areas to give life to their dreams by providing them the means to fulfill them. While at its peak, the industry also faced challenges which significantly impacted the business models.

Good accounting practices are an important cornerstone in building a successful microfinance project. Moreover, good financial reporting will inspire confidence from benefactors or other contributors of loan capital. The professionals like CMAs are competent enough for supervising financial reports at regular intervals and review the capital appropriation request and also make sure the timeliness as well as the accuracy of all the financial reports consequently supporting to determine the viability of the microfinance project.

Finally, my sincere gratitude to all the contributors for all their efforts made to publish this on time.

And now, I invite you to read take a glance through the pages of this Bulletin, and very much hope you all enjoy this reading.

Suggestions for making the book more useful to a larger section of users are welcome.

CMA Manas Kumar Thakur

President

The Institute of Cost Accountants of India

Chairman's Communiqué

Greetings!!!

It gives me an immense pleasure to announce the release of Research Bulletin, Vol.42, No. IV, January, 2017 issue. Our Research Bulletin mainly emphasizes on pragmatic research articles and has a much wider reader base consisting of academicians, researchers, professionals and practitioners. The strength of this book lies in its innovative approach in looking at issues in a comprehensive manner.

Increased global competition has enforced companies to think aggressively about effective Cost Management. A low cost high quality product has become an object of desire, to gain a competitive edge. Costs have to be planned and instantly controlled across the whole value chain. The identification of cost risks, their management and mitigation is an essential duty. This demands the application of the best, benchmarked tools and procedures with respect to cost and schedule control. Cost management is a philosophy, an attitude, and a set of techniques to create more value at lower cost. In this fast space competitive scenario, Cost Management information increases customer value. Here, CMAs can facilitate Managers to discover wasteful and inefficient processes and implement newer, more cost competitive ways of producing the same products. CMAs can even seek to improve intangible assets like a company's image and brand. Customer's insight of a brand is important for sales as well as product pricing strategies.

Efforts of my fellow members of the Research, Journal and IT Committee, esteemed members of the Editorial Board, the eminent contributors and the entire research team of the Institute for their sincere effort to publish this volume in time in bringing out this book are deeply appreciated and gratefully acknowledged.

The readers are invited to put forward their valuable feedback towards enrichment of Research Bulletin.

Suggestions for improvement of this Bulletin shall be highly appreciated.

CMA Avijit Goswami

Chairman, Research, Journal & IT Committee

The Institute of Cost Accountants of India

Editor's Note

Greetings!!!

India has struggled for years to deal with the problems of bad debt in the absence of any genuine national bankruptcy law, and a legal system that was once heavily tilted towards company owners and the mission of saving businesses for the sake of their workers. Banks are pinning their hopes on the Insolvency and Bankruptcy Code, 2016 for effective loan recovery. The Insolvency and Bankruptcy Code (IBC), 2016 passed by the Parliament is a welcome approach towards improvising the existing framework dealing with insolvency of corporate, individuals, partnerships and other entities. The Code creates a new institutional framework, consisting of a regulator, insolvency professionals, information utilities and adjudicatory mechanisms, that will facilitate a formal and time bound insolvency resolution process and liquidation. The advent of IBC, 2016 widened the scope for professionals like CMAs. They are proficient enough to be appointed as Insolvency Professionals, to deal with matters of insolvency, liquidation and bankruptcy and assist to reduce sufferings of banks overburdened by Non Performing Assets (NPA).

Our present volume of Research Bulletin, Vol.42, No. IV, January 2017 issue comprises of various blazing topics like MSME, Bancassurance, GST, Bankruptcy, Stock Market, etc. would surely improve the knowledge base of readers.

We publish both theme based and non theme based articles on the contemporary issues. Inputs are mainly received both from academicians and the corporate stalwarts. Our attempt is to draw attention towards environmental, social, economical and market-related issues, so that the researchers and decision-makers can enrich their knowledge base and can take strategic decisions deliberately.

We are extremely happy to convey that our next issue of *Research Bulletin, Vol.43, No. I in association with National Institute of Securities Markets (NISM), an Educational Initiative of SEBI* would be published in *April, 2017*. It would be on the theme *"Contemporary Issues in Securities Markets"*.

We look forward to constructive feedback from our readers on the articles and overall development of the Research Bulletin. Please send your mails at research.bulletin@icmai.in. We express thankfulness to all the contributors and reviewers of this important issue and wish our readers get requisite insight from the articles.

CMA (Dr.) Debaprosanna Nandy

Director (Research & Journal and Examination) & Editor, Research Bulletin

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Assessing Tracking Risk of ETFs in India - An Empirical Study on Selected Index ETFs

Swapan Sarkar

Abstract:

One of the significant financial innovations, which has attracted the maximum attention of investors in recent times because of its manifold advantages, is the Exchange Traded Funds (ETFs). The prime reason for ETFs being so popular is their so called ability to replicate the performance of the underlying. However, do they really track the underlying effectively? Recent studies across the world have raised serious doubt over the so called belief. The present study attempts to unearth the answer to this question in Indian context by analyzing the tracking risk of 11 Index ETFs for a sample period from 1.1.2011 to 31.12.2015. The study finds, against the common belief, that Indian Index ETFs do possess significant tracking risk which can be a potential deterrent for its future growth.

Key Words:

Exchange Traded Fund, Tracking Error, Tracking Risk, Return Differentials, Benchmark

Introduction:

Over the last two and a half decades exchange traded funds have attracted the interest of almost all market participants because of their unique characteristics as an investment product. Globally the total assets under management (AUM) of ETFs have crossed the $3.546 trillion mark at the end of 2016. In 2016 itself, these funds have gathered record inflows of US$389 billion. These assets are spread over 270 ETF providers in 51 countries with products listed on 64 distinct exchanges (Source: Reports published by ETFGI LLP, London; Date: 12th January 2017; www.etfgi.com).

One of the prime reasons for ETFs being so popular is their so called ability to replicate the performance of the underlying. However, do they really track the underlying effectively? Recent studies across the world have raised serious doubt over the so called belief. The present study attempts to unearth the answer to this question in Indian context.

Concept of Exchange Traded Funds:

ETFs are derivatively priced financial instruments which track a given underlying including stock, bonds, commodities or a basket of assets like an index fund. These are actively traded on intra-day basis in a stock exchange. ETFs enjoy a unique trading mechanism with dual market structure. In the primary market it is open only to the authorized participants who can create and redeem ETF shares in kind directly from the fund in lots. On the other hand, in the secondary market these are open to all investors who can trade on them on a real time basis. Accordingly, ETFs have two prices; the Net Asset Value (NAV) at which ETF shares are created and redeemed in the primary market and the market price which is determined through the interaction of demand and supply of ETF shares in the secondary market. When the buying and selling pressure are on a higher side these two prices may significantly deviate from one another. However the in kind creation and redemption procedure itself ensures that such deviations are wiped out very quickly through an arbitrage process.

Origin and Development of ETFs:

The origin of exchange traded funds can be traced back in

1989 when the trading of Index Participation Shares, an S & P 500 Proxy, started on the American Stock Exchange and the Philadelphia Stock Exchange. Since then ETFs, have continued their triumph over similar other products till date. Some of the noteworthy milestones in this respect are –

Year	Milestones
1990	Toronto Index Participation Shares started trading on the Toronto Stock Exchange. This instrument used to track TSE 35 initially and TSE 100 indices at a later stage.
1993	U.S.A developed Standard & Poor's Depository Receipts, known as SPDRs,
1996	Barclays Global Investors, a subsidiary of Barclays PLC introduced World Equity Benchmark Shares (WEBS) subsequently renamed as iShares MSCI Index Fund Shares.
1998	Sector specific SPDRs were launched by State Street Global Advisors. This product tracked nine sectors of the S&P 500.
1998	"Dow Diamonds" were introduced to track the famous Dow Jones Industrial Average Index.
1999	Introduction of 'Cubes' to replicate the movement of NASDAQ-100.
2002	iShare introduced the first ever Bond ETF.
2003	First Gold ETF, Gold Bullion Securities (ticker symbol "GOLD"), was listed on the Australian Stock Exchange.
2005	iShares Gold Trust was launched by iShares.
2006	ETF Securities launched ETFS Gold (LSE: BULL) which tracks the DJ-AIG Gold Sub-Index.
2007	iShare introduced funds to track junk and muni bonds.
2009	SPDR Gold Shares became the largest and most liquid Gold ETF

In India, the first ETF was launched in December 2001 by Benchmark Mutual Fund. The name of the product was NIFTYBEES and it was based on the Nifty 50 index. In 2003 came LIQUIDBEES, the first ever liquid ETF in the world. GOLDBEES, the first Gold ETF in India was also introduced by Benchmark AMC in March 2007. By 2011-12 there were 14 Gold ETFs and 21 Index ETFs in India. Unfortunately, since 2012-13, Gold ETFs lost their shine due to steady decline of gold prices around the world. However Index ETFs maintained their momentum further. In 2014-15, 8 new Index ETFs were introduced. For 2015-16 and 2016-17 the number went on to 11 and 18.

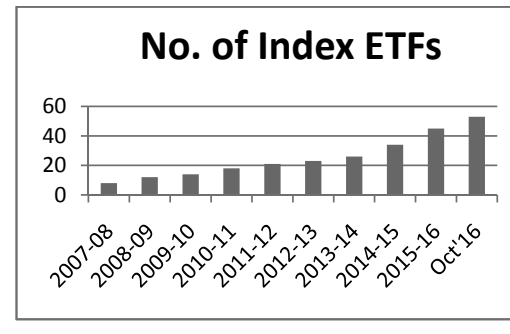

Figure 1: Growth of Index ETFs (Number)

Not only in numbers, the growth of Index ETFs is phenomenon in terms of the total number of folios as well as the Average Asset Under Management (AAUM). In 2008-09, there was a threefold increase in the number of folios from 8591 to 24955. Another remarkable spurt was seen in 2010-11 with an increase of 66225 folios within a year. For all the other years the growth was satisfactory. As of October 2016 the number of registered Index ETF folios stand at 284903, distributed over 53 Index ETFs and recording more than 32 times growth in just one decade. A simultaneous growth has also been observed in the AAUM of Index ETFs. While the AAUM was just Rs. 3023.21 cr. in 2007-08, it has now reached at Rs. 23473.61 cr. For the entire ETF industry the above figure stands at Rs. 29524.6 cr. spread over 66 ETFs (including 13 Gold ETFs) with 682183 folios (October 2016).

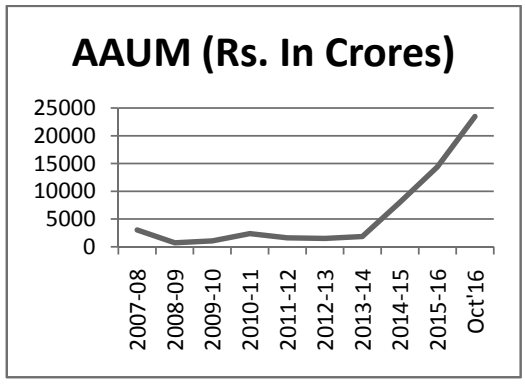

Figure 2: Growth in AAUM

(Source: SEBI Reports.)

Features of ETFs: ETFs offer a number of unique characteristics including the following.

a) Dynamic Pricing: Though in terms of generic nature, ETFs resemble mutual funds, they are traded intra-day in stock exchanges just like shares and hence are continuously priced.

b) Similar to Derivatives: Similar to derivatives, ETFs track a given underlying (share, bond, metal or any index). As a result their value fluctuates with the fluctuations in the price of the underlying. For example, Gold ETFs have physical gold as their underlying. Hence the price and NAV of Gold ETFs fluctuate with the price of physical gold.

c) High Transparency: Since ETFs are designed to replicate the performance of their underlying, investors are least assured about the composition of their portfolios. Additionally, due to efficient disclosure practices adopted by them, it is possible to access information such as expense ratio, portfolio holding etc. frequently.

d) Tax Efficiency: ETFs are mostly passively managed and hence are characterized by lower turnover and less realized capital gains. Since these capital gains are actually shared by the investors, ETFs offer greater tax efficiency.

e) Low Cost: Due to its passive management style, ETFs pay lower management and administrative fees as compared to traditional actively managed mutual funds. Lower cost positively affects the returns of ETFs.

f) High Liquidity: ETFs are highly liquid as the shares are traded on a real time basis. Hence investors can easily sell their holding and realize their investment at an efficient price. In case of traditional mutual funds redemption requests are processed only at the closing NAV.

g) Diversification and Precision: Through index ETFs investors can invest in multiple securities and can enjoy better diversification. In case of other ETFs which invest in a particular asset class the precision is really appreciable.

Broad Classification of ETFs: ETFs can be classified in many ways:

a) Nature of Underlying: According to the nature of the underlying there can be Commodity ETFs such as Gold ETFs (e.g. R Share Goldbees), Currency ETFs (e.g. US Dollar Money Market ETF) or Index ETF. Index ETFs are further classified into Equity ETFs tracking indices of

equity shares (e.g. R Share Niftybees tracking Nifty 50) and Fixed Income ETFs (e.g. LIC NF G-SEC LT tracking GSE 10 Index of NSE).

b) Management Style: According to the fund management style ETFs can be either Passively Managed ETFs (like Index ETFs) or Actively Managed ETFs (e.g. Current Yield ETF by Bear Strearns). However, majority of the ETFs around the world are passively managed.

c) Physical vs. Synthetic ETFs: ETFs can also be Physical where the underlying is a particular asset class or securities under a given index (e.g. Gold ETFs or Index ETFs) and Synthetic where the underlying are some swaps or collaterals. Synthetic ETFs use financial engineering to achieve the benchmark returns instead of holding the securities itself.

d) Others: Apart from the above there are some recent innovations in ETFs such as Leveraged ETFs and Inverse ETFs. Leveraged ETFs promise returns that are more sensitive to market movements (such as double or triple returns as offered by their non leveraged counterparts). These are often called bull or bear funds. Inverse ETFs on the other hand are designed to perform inversely with the benchmark it follows. Both these ETFs use financial engineering to achieve their objectives.

Performance Evaluation of ETFs; the Tracking Risk:

Since ETFs are actively traded in the stock exchanges, their performance can be measured in terms of the return they offer due to daily price fluctuations. However some ETFs such as Index ETFs regularly pays dividend and hence their returns do constitute the dividend yields. In other words, ETF returns can either be price return (excluding dividends) or total returns (including dividends). However, since most ETFs are designed to replicate the performance of their underlying, returns cannot be the sole criteria for evaluating the performance of an ETF. Researchers argue that a better alternative is to see how effectively the ETFs are tracking their benchmarks. Though under a full replication strategy, ETF returns are likely to underperform their benchmark only due to the total expense ratio; in practice the deviations are found to be larger. This is due to the fact that ETFs often fail to track their benchmark because of various factors both endogenous as well as exogenous. This tracking risk can sometime be quite fatal for an investor desiring of choosing a particular ETF. Thus a careful analysis of the tracking risk can only assist an investor in choosing the best ETF out of an available lot.

Literature Review:

Over the years many research studies have been conducted on different issues of performance evaluation of exchange traded funds including the tracking risk as mentioned above. A brief review of the studies conducted internationally and also in India is as follows.

♦ **Studies in International Context:**

Frino and Gallagher (2001) examined the magnitude and fluctuation of tracking error for a sample of S&P500 index funds over a five year period and found that index funds experienced difficulties in replicating the returns of the target index with tracking error ranging between 0.039% to 0.110% before cost.

Elton et al (2002) examined the performance and characteristics of SPDRs. They found an average of 0.28% annual underperformance for spiders relative to the benchmark, S&P 500 Index, over the period from 1993-1998.

Cresson, Cudd, and Lipscomb (2002) examined the tracking performance of S&P 500 index funds using daily data and applying a naive measure of tracking error, fund R-square, to the set. Results showed that tracking performance measures based on daily returns are substantially lower than those based on monthly returns found in earlier studies.

Kostovetsky (2003) found that the cost differences between index mutual funds and ETFs are due to management fees, shareholder transaction fees, tax efficiency, and other qualitative differences.

Gallagher and Segara (2004) examined the performance of Australian ETFs between January 2002 and December 2003.

They found evidence of significant tracking errors for ETFs.

Rompotis (2006a) studied the performance of Swiss ETFs and found that the Swiss ETFs are underperforming their benchmark. The author concluded that non-full replication of benchmark's components restricts ETFs to replicate the performance of the underlying benchmark accurately.

Rompotis (2006b) empirically examined the performance of 73 equity shares ETFs over a one year period using daily data. He found that shares return moves in line with the return of underlying indices. He also found evidence for a perfect replication strategy. However, the study found significant tracking errors for shares.

Rompotis (2009) found that the returns of ETFs and index funds are slightly inferior to the returns of benchmarks. They also found a positive relationship between tracking error and expense ratios in contrast with the common belief that expenses usually erode performance.

Sin and Soydemir (2010) studied the performance of Asian ETFs market using Jensen's model, by examining the persistence of tracking error and information dissemination. They concluded that Asian ETFs are less efficient in disseminating information and depreciation in dollar will cause a larger tracking error.

Blitz, Huij and Swinkle (2010) found that the European ETFs underperform their benchmark by 50 to 150 basis points per annum and suggest that the funds expense ratio and dividend tax can help explain the underperformance.

Blitz, Huij, and Swinkels (2012) found that not only fund expenses but also dividend withholding taxes may explain the performance differences between funds that track different benchmarks and time variations in fund performance.

♦ **Studies in Indian Context:**

Prasanna (2012) evaluated the performance of the Indian ETFs and found that Indian ETF market is consistently outperforming the market index and has generated higher return.

Garg (2014) examined 12 ETFs listed on NSE over a period ranging from January 2002 to December 2009. The study found evidence of significant daily tracking errors for ETFs, however no significant bias in performance is found over long term investment horizon.

Research Gap:

Our review of literature explicitly shows that the empirical research on ETFs trading in Indian bourses is really limited. This is because the ETF industry in India is still not matured and is passing through continuous development. Out of the 66 ETFs (the number is subject to the recent consolidation due to a few mergers of AMCs) more than 50 ETFs (including all Gold ETFs) are less than 10 years old. 26 ETFs have been launched only during the last three and half year. Additionally, a considerable number of the research studies were addressed towards evaluating the growth of ETF industry and performance of ETFs in terms of the returns they generated, especially for Gold ETFs. Thus there exists a research gap to investigate how Indian ETFs and specifically the Index ETFs are justified in tracking their underlying and what is the tracking risk pattern of these ETFs in India. This study has successfully attempted to address such issue.

Objectives of the Study:

The overall objective of the study is to analyze the tracking risk of Index ETFs in India. However the specific objectives are –

a) To analyze empirically, whether Index ETFs in India are successful or not in tracking their respective benchmarks.

b) To analyze the tracking risk pattern of Index ETFs in India.

Research Methodology:

♦ **Data and Sample:**

As stated in the 'objectives of the study' section, the present study is mainly empirical. For this empirical portion i.e. to capture the tracking risk pattern, Index ETFs listed on NSE have been selected. This selection is made on the basis of the following parameters.

a) The selected Index ETF must be launched prior to 1.1.2011.

b) The selected Index ETF must be listed on NSE on or before 1.1.2011.

c) The selected Index ETF must not be a Fixed Income ETF.

d) Data for the entire sample period of five years ranging from 1.1.2011 to 31.12.2015 must be available.

Accordingly 11 Index ETFs meeting the above criteria have been included in the final sample. The details have been given in the 'Findings of Analysis' section.

In order to analyze the tracking performance of the selected ETFs necessary data on daily closing prices of the selected ETFs and their respective benchmark indices have been collected from the official website of National Stock Exchange (NSE). Since all ETFs need not necessarily traded everyday because of lack of orders, price data of their respective indices have been accordingly mapped to calculate the daily return for each trading day on which the ETF was traded. This essentially has led to heterogeneity in the actual number of return observations of each ETF within the same sample period.

♦ **Research Hypothesis:**

Considering the overall as well as the first specific objective of the study, the null and alternative hypotheses can be set as follows.

$\mathbf{H_0}$ = Index ETFs in India have successfully tracked their benchmark indices and hence tracking errors are insignificant.

$\mathbf{H_1}$ = Index ETFs in India have failed to successfully track their benchmark indices and hence tracking errors are significant.

♦ **Research Methods:**

For this empirical study, comprehensive analysis based on appropriate statistical tools have been performed to first calculate the returns of ETFs and their underlying indices and then to identify the tracking risk in terms of tracking error metrics (TE metrics).

a) Calculation of Returns: The analysis in the study is based on daily returns of ETFs and benchmark indices. While calculating returns natural log difference of the current price and previous price have been considered. Log returns have been taken because they are statistically more tractable than percentage returns.

Accordingly, the daily ETF return (r_p) has been defined as $r_p = \log (P_t/P_{t-1})$ where P_t = closing price of the ETF on day t and P_{t-1} = closing price of the ETF on day t-1.

Similarly, the daily benchmark return (r_b) has been defined as $r_b = \log (I_t/I_{t-1})$ where I_t = closing value of the benchmark index on day t and I_{t-1} = closing value of the benchmark index on day t-1.

b) Calculation of Tracking Error Metrics: Though in common deliberations tracking errors are often confused with tracking difference i.e. difference between ETF return and benchmark return for a given period, they are not the same. Tracking Errors are more associated with capturing the volatility in return differentials (i.e. $r_p - r_b$). Over the years various tracking error metrics have been proposed by researchers. The present study has considered five most used tracking error metrics for the purpose of analysis. These are –

1) Root Mean Square of Return Differentials: This is the most common and popular non centric and quadratic TE measure used in many literature. It is formally defined as –

$$TE_{RMS(NCE)} = \sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(r_{p,t} - r_{b,t}\right)^2}\,.$$

Where $r_{p,t}$ and $r_{b,t}$ are daily log return of ETF and the benchmark for day t.

2) Standard Deviation of Return Differentials: This TE measure, introduced by Roll (1992) is considered to be the best quadratic TE measure. This has also been used in its official definitions issued by ESMA (2012). It is a centric measure and formally defined as –

$$TE_{SD(CE)} = \sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(r_{d,t} - \bar{r_d}\right)^2}\,,$$

Where $r_{d,t}$ = daily return differential i.e. ($r_{p,t}$ - $r_{b,t}$).

3) Standard Error of Regression between ETF Return and Benchmark Return: The third measure of tracking error is the standard error of return regression (i.e. standard deviation of the regression residuals) between ETF Return and Benchmark Return. The regression equation is defined as –

$r_{p,t} = \alpha + \beta^* r_{b,t} + \varepsilon_t$,

Where, ε_t is the error term of the regression. The standard error of this regression, say, TE_{REG} is then the tracking error. Under a full replication strategy, α is not likely to be statistically different from zero and β is not likely to be statistically different from 1 and R^2 must closely equal to unity.

4) Adjusted R^2 of Regression: The fourth TE measure used in the study is the adjusted R^2 of the return regression between ETF Return and Benchmark Return. Since a higher adjusted R^2 indicates that exploratory variable (here benchmark return) better explains the dependent variable (here ETF return), this measure can be used as a proxy of tracking risk. Accordingly higher adjusted R^2 will indicate lower tracking risk and full replication of the performance of the underlying and vice-versa.

5) Mean Absolute Deviation of the Return Differentials: The fifth and the final TE measure used in this study is the mean absolute deviation of the return differentials (TE_{MAD}). This is a linear model of TE and is formally defined as –

$TE_{MAD} = \frac{1}{T}\sum_{t=1}^{T}|r_{p,t} - r_{b,t}|$

C) Analysis of Tracking Risk: After calculating the five TE measures, the study has examined the tracking risk of all the 11 Index ETFs in terms of the five TE measures for each of the five sub-periods as well as for the entire sample period. Next, the study has conducted a statistical test of significance (t test) on the tracking measures (both year-wise as well as overall) to see whether the tracking errors are statistically significant and thereby has attempted to test the research hypothesis. It also has undertaken a comparative analysis and ranking of the 11 ETFs selected for the study for each of the five years of the sample periods separately as well as for the entire sample period, after having satisfied as to whether the metrics significantly differ from each other. This is done to identify the relative position of the selected ETFs in terms of their tracking risk. The study also conducts a descriptive statistic analysis in order to identify the tracking risk pattern of Index ETFs in India.

Findings of the Study:

♦ **Assessing the Tracking Risk of Index ETFs in India:**

❁ **Composition of the Sample:**

As mentioned earlier (refer to 'Data and Sample' section), in the attempt to assess the tracking risk of Index ETFs in India, the study identified 11 Index ETFs for analysis over a five year sample period. The details of these 11 schemes are as follows:

Table 1: Details of the Index ETFs selected under the Sample

Name	NSE Symbol	Benchmark Index	Date of Inception
R*Shares Nifty BeES	NIFTYBEES	Nifty 50	28.12.2001
R*Shares Junior BeES	JUNIORBEES	Nifty Next 50	21.02.2003
R*Shares Bank BeES	BANKBEES	Nifty Bank	27.05.2004
R*Shares PSU Bank BeES	PSUBNKBEES	Nifty PSU Bank	25.10.2007
Kotak Mahindra Mutual Fund	KOTAKPSUBK	Nifty PSU Bank	07.11.2007

Table 1: Details of the Index ETFs selected under the Sample

Quantum Index Fund -ETF	QNIFTY	Nifty 50	10.07.2008
R*Shares Sharia BeES	SHARIABEES	Shariah	18.03.2009
Kotak Nifty ETF	KOTAKNIFTY	Nifty 50	02.02.2010
R*Shares Hang Seng BeES	HNGSNGBEES	Hang Seng Index	09.03.2010
Motilal Oswal MOSt Shares M50 ETF	M50	Nifty 50	28.07.2010
R*Shares Infra BeES	INFRABEES	Nifty Infra	29.09.2010

Results of the Tracking Risk Analysis:

The results of the tracking risk analysis are as follows –

Results of Individual Tracking Error Measures:

1. Root Mean Square of Return Differentials (TE_{RMS}): The results of TE_{RMS} measure have been shown in Table 2. Our Analysis shows that for the entire sample period TERMS ranges from 0.3249% to 2.9005%. The tracking error is the least for NIFTYBEES and the highest for SHARIABEES. From year to year analysis it is observed that except for BANKBEES, JUNIORBEES, KOTAKNIFY and QNIFTY and NIFTYBEES, the tracking error is more than 1% for almost all the years. Moreover, SHARIABEES and HANGSNGBEES have registered more than 2% TE for all the years from 2012.

Table 2: Results of TE_{RMS}

Index ETFs	2011	2012	2013	2014	2015	ALL
BANKBEES	0.007302	0.007999	0.008518	0.005425	0.002937	0.006753
INFRABEES	0.009159	0.021104	0.020984	0.023375	0.013692	0.018395
JUNIORBEES	0.008758	0.007895	0.007564	0.007802	0.006579	0.007744
KOTAKNIFTY	0.009203	0.008111	0.007654	0.00367	0.003764	0.007068
KOTAKPSUBANK	0.016946	0.018065	0.015003	0.013162	0.014303	0.015594
M50	0.012063	0.011187	0.010325	0.032776	0.00683	0.017202
PSUBANKBEES	0.01488	0.017914	0.022947	0.017755	0.012543	0.01755
Q NIFTY	0.009104	0.008227	0.00833	0.005596	0.00797	0.007937
NIFTY	0.004313	0.00349	0.003029	0.002507	0.002559	0.003249
SHARIABEES	0.012621	0.027239	0.039373	0.034707	0.025627	0.029005

Table 2: Results of TE_{RMS}

Index ETFs	2011	2012	2013	2014	2015	ALL
HANGSNGBEES	0.017099	0.0219	0.03131	0.02194	0.026554	0.024279

2. Standard Deviation of Return Differentials: The results of TE_{SD} measure have been shown in Table 3. Our Analysis shows that for the entire sample period TE_{SD} ranges from 0.325% to 2.9018%. Here also the tracking error is the least for NIFTYBEES and the highest for SHARIABEES. From year to year analysis it is observed that except for BANKBEES, JUNIORBEES, KOTAKNIFY and QNIFTY and NIFTYBEES, the tracking error is more than 1% for almost all the years. Moreover, SHARIABEES and HANGSNGBEES have registered more than 2% TE for all the years from 2012.

Table 3: Results of TE_{SD}

Index ETFs	2011	2012	2013	2014	2015	ALL
BANKBEES	0.007317	0.008015	0.008536	0.005436	0.002943	0.006756
INFRABEES	0.009179	0.021147	0.021027	0.023424	0.01372	0.018402
JUNIORBEES	0.008776	0.007911	0.00758	0.007818	0.006592	0.007747
KOTAKNIFTY	0.009217	0.008128	0.00767	0.003677	0.003772	0.007071
KOTAKPSUBANK	0.016974	0.018095	0.01499	0.013189	0.014284	0.015586
M50	0.012084	0.011209	0.010345	0.032844	0.006844	0.017208
PSUBANKBEES	0.0149	0.017945	0.02297	0.017791	0.012515	0.017547
Q NIFTY	0.009123	0.00825	0.00835	0.005609	0.007988	0.007941
NIFTYBEES	0.004322	0.003497	0.003035	0.002512	0.002564	0.00325
SHARIABEES	0.012649	0.02731	0.039476	0.034785	0.025687	0.029018
HANGSNGBEES	0.017113	0.021949	0.031367	0.021988	0.026612	0.024286

3. Standard Error of Regression between ETF Return and Benchmark Return: The results of TE_{REG}, one of the robust TE measures, have been shown in Table 4. The overall results show no significant departure from the previous two results. For the entire sample period TE_{REG} ranges from 0.3069% to 2.8453%. Other results are also similar to the previous results.

Table 4: Results of TE_{REG}

Index ETFs	2011	2012	2013	2014	2015	ALL
BANKBEES	0.006505	0.007251	0.007898	0.005335	0.002835	0.006288
INFRABEES	0.008914	0.020853	0.018177	0.0227	0.013291	0.017636

Table 4: Results of TE_{REG}

Index ETFs	2011	2012	2013	2014	2015	ALL
JUNIORBEES	0.008656	0.007729	0.00721	0.007599	0.006274	0.00751
KOTAKNIFTY	0.008528	0.007841	0.006879	0.0035	0.003127	0.006578
KOTAKPSUBANK	0.015516	0.017587	0.013857	0.013213	0.014234	0.015094
M50	0.011646	0.01113	0.010065	0.03282	0.006701	0.017069
PSUBANKBEES	0.014402	0.017421	0.022479	0.016873	0.012527	0.017331
Q NIFTY	0.008011	0.007484	0.007873	0.005105	0.007316	0.007225
NIFTYBEES	0.004025	0.003415	0.002786	0.002445	0.002363	0.003069
SHARIABEES	0.01208	0.027022	0.038136	0.03461	0.025049	0.028453
HANGSNGBEES	0.015237	0.019884	0.030424	0.021675	0.025708	0.023231

4. Adjusted R^2 of Regression: Unlike the other matrices this measure shows how efficiently the ETF returns are explained by corresponding benchmark returns. Accordingly, a high adjusted R^2 will indicate better replication of index performance as compared to a situation with relatively low adjusted R^2. Our analysis (Table 5) shows that adjusted R^2 ranges between 3% (for SHARIABEES to 90% (NIFTYBEES). BANKBEES has also exhibited more than 81% explanation supported by the respective index. Unfortunately, for all other the value is not at all satisfactory. These results indicate that most of the Index ETFs under study have failed to effectively replicate the performance of underlying benchmark.

Table 5: Results of $TE_{RSQUARE}$

Index ETFs	2011	2012	2013	2014	2015	ALL
BANKBEES	0.820724	0.697524	0.792588	0.836872	0.957317	0.81674
INFRABEES	0.627282	0.195104	0.067566	0.113906	0.325921	0.205291
JUNIORBEES	0.597091	0.55258	0.607537	0.603234	0.696093	0.613334
KOTAKNIFTY	0.563108	0.472459	0.572649	0.793256	0.871801	0.600182
KOTAKPSUBANK	0.305839	0.246009	0.464646	0.510809	0.443487	0.381349
M50	0.419548	0.342296	0.438597	0.023713	0.633482	0.194459
PSUBANKBEES	0.461806	0.246364	0.271235	0.379144	0.542004	0.358256

Table 5: Results of $TE_{RSQUARE}$

Index ETFs	2011	2012	2013	2014	2015	ALL
Q NIFTY	0.574077	0.535627	0.598457	0.62743	0.531095	0.575156
NIFTYBEES	0.893168	0.868582	0.930279	0.901376	0.938941	0.906743
SHARIABEES	0.375117	0.03524	0.000451	0.007198	0.02797	0.033968
HANGSNGBEES	0.250157	0.002164	0.000487	0.055094	0.050392	0.048458

5. Mean Absolute Deviation of the Return Differentials: The results of the fifth and final TE measure of the study i.e. TE_{MAD} have been exhibited in Table 6. The results are again no different than the first three TE measures. However, one important observation worthy to be noted in this context is that TE_{MAD} is considerably low in value for each of the schemes under study. More specifically M50 has shows a better performance under this measure.

Table 6: Results of TE_{MAD}

Index ETFs	2011	2012	2013	2014	2015	ALL
BANKBEES	0.005471	0.005921	0.005467	0.003523	0.002206	0.004517
INFRABEES	0.00704	0.015213	0.015517	0.016562	0.009182	0.012647
JUNIORBEES	0.00618	0.006015	0.005749	0.006	0.004996	0.00578
KOTAKNIFTY	0.006316	0.005733	0.005091	0.002739	0.002746	0.004569
KOTAKPSUBANK	0.01215	0.013367	0.011441	0.009847	0.010704	0.0115
M50	0.009208	0.00785	0.007835	0.009825	0.00527	0.00799
PSUBANKBEES	0.010079	0.013806	0.016873	0.013074	0.009509	0.012663
Q NIFTY	0.007175	0.006148	0.005952	0.004338	0.006479	0.006026
NIFTYBEES	0.003247	0.002325	0.002082	0.001844	0.00183	0.002264
SHARIABEES	0.009792	0.016976	0.029953	0.024055	0.020088	0.019876
HANGSNGBEES	0.01296	0.015199	0.022062	0.015985	0.018242	0.01691

Thus the results of individual TE measures used in the study essentially suggest that the tracking error of most of the Index ETFs are abnormally high except for NIFTYBEES, BANKBEES,JUNIORBEES (with less than 0.6% tracking error).

Statistical Significance of TE Measures:

In order to identify whether the TE measures obtained above are statistically significant or not, the study conducts a one sample t test on TE_{MAD}. The results (i.e. t value obtained) are shown in Table 7 below. It is observed that all the TE_{MAD} measures for each of the ETFs under study are statistically significant at 1% level for each of the individual sub-periods under study as well as for the entire sample period. This eventually suggests that tracking risk is indeed very high and none of the funds have effectively track their underlying indices and thereby refutes the research hypothesis of the study.

Table 7: Result of one sample t test on TE_{MAD} (i.e. t value obtained)

Index ETFs	2011	2012	2013	2014	2015	All
BANKBEES	17.70803	17.37658	13.18074	13.30985	17.83293	31.65653
INFRABEES	17.98637	16.34565	17.08682	15.52335	14.17834	33.16473
JUNIORBEES	15.58563	18.55848	18.4183	18.71151	18.30463	39.46811
KOTAKNIFTY	14.77119	15.67157	14.02807	17.40185	16.73463	29.76232
KOTAKPSUBANK	16.10033	17.32208	18.56596	17.50267	17.69622	38.38924
M50	18.49515	15.5406	18.34825	4.887921	18.94924	18.45376
PSUBANKBEES	14.41161	19.08486	17.08585	16.9288	18.22982	36.66919
Q NIFTY	19.13976	14.73746	14.51891	17.65367	20.32331	37.43334
R SHARE NIFTY	17.90663	14.09094	14.90957	16.8873	16.04773	34.20112
SHARIABEES	18.54087	11.01018	16.19927	14.22922	18.37993	30.48996
HANGSNGBEES	17.88896	14.4585	15.38406	15.99085	14.18019	33.07223

Variation in Results Due to Methods Adopted:

The results of different tracking error measures used in this study show variations which at times appear to be substantial (Table 2, 3, 4 and 6). This may raise serious doubt about the validity of TE measures. Hence it is essential to test whether the variation in results is due to the methods adopted or there is any other reason. If, based on test results, the TE metrics are found not to differ significantly across methods; attempts may be made to combine their results in terms of ranking to arrive at an overall conclusion regarding the tracking risk of the sample ETFs. Therefore the study conducts an ANOVA test (F Test) which is used to determine whether a number of populations (three or more) differ significantly in terms of their mean. The result of the ANOVA test is shown in Table 8 below. For the purpose of this test the study excludes the adjusted R^2 measure of TE as it is a completely different concept and used rather as a proxy measure than actual.

Table 8: Result of ANOVA Test

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.000161	3	5.36E-05	0.930962	0.434664	2.838745
Within Groups	0.002301	40	5.75E-05			
Total	0.002461	43				

Since the observed value of F is lower than the critical value of F (alternatively, since p value >0.05), the results explicitly explain that there is no significant difference between the methods adopted. Hence it would not be inappropriate if we combine the results in terms of the relative ranking of each ETF to arrive at some overall ranking to detect the relative tracking inefficiencies of sample ETFs.

Relative Tracking Inefficiencies of Sample ETFs:

In order to detect the relative tracking inefficiencies of sample ETFs, each ETF is first given a rank based on the value of a particular TE measure for the entire sample period. The rank scores of each ETF under all the four are then added to get the total rank score. Based on this total score an overall ranking is then allotted to each ETF in order to show their relative inefficiency in tracking the benchmark. The details are given in Table 9 below. Ranks have been allotted based on the rule - the lower the tracking error the better is the rank.

Table 9: Relative tracking Inefficiencies of ETFs

Index ETFs	**$Rank_{RMS}$**	**$RAnk_{SD}$**	**$Rank_{REG}$**	**$Rank_{MAD}$**	**Total Rank**	**Final Rank**
BANKBEES	2	2	2	2	8	2
INFRABEES	9	9	9	9	36	9
JUNIORBEES	4	4	5	4	17	4
KOTAKNIFTY	3	3	3	3	12	3
KOTAKPSUBANK	6	6	6	7	25	6
M50	7	7	7	6	27	7
PSUBANKBEES	8	8	8	8	32	8
Q NIFTY	5	5	4	5	19	5
NIFTYBEES	1	1	1	1	4	1
SHARIABEES	11	11	11	11	44	11
HANGSNGBEES	10	10	10	10	40	10

The table above shows that NIFTYBEES has outperformed all others in tracking its benchmark followed by BANKBEES and

KOTAKNIFTY. Among the worst performers are HANGSNGBEES with penultimate ranking and SHARIABEES with the last ranking. They have totally failed in tracking their indices.

Tracking Risk Pattern of Index ETFs in India:

In order to assess the tracking risk pattern of Index ETFs in India, the study conducts an analysis of the descriptive statistics of all four TE measures across 11 ETFs under study. The results are shown in table 10 below.

Table 10: Descriptive Statistics

Particulars	TE_{RMS}	TE_{SD}	TE_{REG}	TE_{MAD}
No. of Observations	11	11	11	11
Minimum	0.003249	0.00325	0.003069	0.002264
Maximum	0.029005	0.029018	0.028453	0.019876
Mean	0.01407	0.014074	0.013589	0.009522
Std. Deviation	0.00817	0.008173	0.008058	0.005623
Skewness	0.462907	0.464052	0.458718	0.587574
Kurtosis	-0.7431	-0.74065	-0.74887	-0.6754

The tracking error under all the methods except TE_{MAD} ranges between 0.3% to 2.9%. The same for TE_{MAD} ranges from 0.2% to 1.9%. This indicates that ETFs varies significantly in their ability of successfully tracking the benchmarks. The mean tracking error in almost all cases is 1% or more which is quite significant. However, a positive skewness indicates that still a good number of ETFs have managed to keep the tracking error at small level. A negative value of the kurtosis also indicates that the tracking errors are relatively flat. However this may be due to the fact that only 11 ETFs constitute our sample. A more comprehensive sample would have indicated otherwise.

Concluding Observations:

The present study on the tracking risk of selected Index ETFs in India have raised a few interesting observations worthy to be noted and have done full justification to all the research objectives set earlier.

First of all, while analysing the individual tracking ability of selected ETFs in terms of different TE metrics it has been observed that NIFTYBEES has shown the best tracking ability with least tracking error under all the five measures while SHARIABEES has been found to be the worst performer followed by HANGSNGBEES.

Secondly, the results of t test have clearly shown that tracking error measured in terms of mean absolute deviation of returns is significant for each of the ETFs for each of the sub-periods as well as for the entire sample period. Thus the null hypothesis is convincingly rejected against the alternative hypothesis of significant tracking inability.

Thirdly, the comparative analysis of sample ETFs through individual ranking and combined ranking have exhibited that NIFTYBEES is the best performer while SHARIABEES is the worst even after considering all the four metrics together. The analysis has also shown that there is very little difference among the four metrics in assessing the relative performance of sample ETFs.

Fourthly, the tracking risk pattern has revealed that Indian Index ETFs are characterized by medium to large tracking risk with average tracking error of more than 1% in three out of four measures. However, the results seem to be inconclusive due to the small size of the sample.

The above results in relation with the tracking efficiencies of index ETFs have immediate as well as long term consequences. As an immediate consequence there is every possibility of portfolio rebalancing by the investors towards funds offering lower tracking error. This will result into flow of investment from poor performing index ETFs to better performing index ETFs leading to decline in both the number of folios and AAUM for some ETFs while increase in the same for few others. On the other hand, significant tracking error may, in the long term,

raise serious doubt about the basic proposition of these funds, which is to generate returns similar to the underlying index. This can be a major setback for the entire ETF industry in India.

Policy Implications of Findings and Suggestions:

Indian ETF industry is still young and has to go a long way towards success. However, since ETFs and more specifically Index ETFs are passively managed schemes, this success will largely depends on how effectively they track their indices. Unfortunately, most of them have failed in this regard and this may be a significant deterrent for the growth of the industry. Though there can be a number of factors attributing to this high tracking errors such as total expense ratio, dividend reinvestment, volatility of stock market, rebalancing cost etc, the significant tracking risk should still be a concern for the regulators and market makers. Hence urgent need should be felt on the part of the regulators to initiate measures such as lowering the total expense ratio and rebalancing cost to put a check on this tracking risk to ensure steady growth for the sector in the years to come. Responsibility also rests on the fund houses to adopt appropriate sampling strategy instead of a full replication strategy which can considerably contribute towards lowering the tracking risk. Only a holistic effort can effectively ensure a lucrative future for this sector in the years to come.

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Bankruptcy Potential of Indian Aviation Industry: An Analysis of Selected Firms

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Abstract:

The Indian aviation industry of late, appears to be not in the shape as it should be. Although there are not much apparent symptoms, a deeper insight would provoke one to find a darker side. Already the scenario has been stained by not so impressive performance of the largest players and the exit of Kingfisher airlines through the trauma of bankruptcy. In fact, our observation is that the industry as a whole is threatened by the specter of bankruptcy which might come true if appropriate steps are not taken before it is too late. This paper is an attempt to analyze the present financial situation for selected airlines using three different models for bankruptcy possibility prediction over a period of five consecutive years (2010-2014) and compare the results with pre-bankruptcy period of Kingfisher airline (2008-2012).

Key Words:

Indian Aviation Industry, Business Exit, Bankruptcy Prediction

1. Introduction

Aviation industry in India has consistently been in the news for huge losses. The private carriers including Jet Airways, JetLite, SpiceJet, GoAir, IndiGo and Kingfisher Airlines (now-defunct) reported a total loss of INR 2,902 crores in 2010-11; rose to INR 7,272 crores in 2011-12 and whole industry lost over INR 5,800 crores during the financial year 2012-13 (Press Trust of India, 2014). Apart from Indigo and GoAir, none of the Indian air-carriers ended their financial year (2013-14) in green and talking about 2014-15, the situation is worse with Air India alone at a net loss of INR 5,547 crores, demonstrating a deteriorating state of the India aviation industry alongside Jet Airways with a net loss of over 1800 crores (Financial Express Bureau, 2015). Notwithstanding the huge growth potential owing to favorable demographics, a large and growing middle class population and overall low penetration levels, the condition of the Indian civil aviation industry is nowhere in close proximity to its international counterparts (KPMG, 2014).

2. History of the Indian Aviation Industry and Cases of Bankruptcy

Due to the size and diverse topological features, air travel was expected to be a vital mode of travel in India.

The Monopoly Era

In 1953, government of India created two national carriers; Air India and Indian Airlines[1] for international travel and domestic travel respectively by amalgamation of existing small carriers for orderly growth of the industry. Until 1992, monopoly of Air India and Indian Airlines prevailed over civil aviation sector with a slow but steady growth. Air travel was patronized by the government, business, and rich individuals and otherwise seen as a luxury, with the masses travelling by train or bus (Krishnan, 2008).

Opening up of the Aviation Sector

In the response of new economic policy 1991, government

allowed the operation of "Air Taxi"[2] services in 1991, and, by 1994, private scheduled air services were allowed to operate. Seeking the opportunity, several new private airlines including Jet Airways, Sahara, Damania, EastWest, Modiluft and NEPC (Natural Energy Processing Co Ltd) started operations. The new entrants followed different strategies to enter the Indian aviation industry. East-West Airlines was the first scheduled private airline in India to take off the ground in 1992 and followed an aggressive growth strategy. Jet Airways started its operations in 1992, and was preferred by business class as it was able to establish a good reputation for being punctual and for offering quality services. Damania positioned itself as an extravagance airline, while Modiluft had a technical tie-up with Lufthansa and projecting itself as a dependable and safe airline (BSCAL, 1997). Sahara offered its services on the historically under-served routes and provided excellent connectivity.

The private air-carriers were able to quickly capture a market share of over 10% by March 1994 (Association of Private Airport Operators, 2016). However, financial viability of these airlines was threatened by high jet fuel cost[3] (Business India, 1995), poor infrastructure, and certain government regulation. Under-capitalization, poor management, failure to build a network that could exploit economies of scale, and overall high fare levels that suppressed demand, spelt trouble for the fledgling airline industry (Business India, 1996). In May 1995, NEPC acquired Damania and renamed it as Skyline NEPC. By 1997, NEPC, Skyline NEPC and Modiluft were forced to go out of business, while EastWest's demise was hastened by the death of its founder. Thus, only Jet Airways and Sahara could survive the first phase of liberalization of the Indian aviation industry.

The Emergence of a New Indian Aviation Industry

The Indian economy maintained a steady growth exceeding 6% after New Economic policy, 1991. The increased size of the economy created a rise in demands for Air travel. Sensing opportunity and huge growth potential, several new players entered the market in the year 2003. Inspired by the "Low Cost Carriers" model[4] pioneered by Southwest Airlines, most of these new airlines chose to adopt low fares as their main penetrative strategy. Captain Gopinath led the pack with Air Deccan which started operation in 2003 and promised to transform the air travel industry by offering until now unheard fares and allowing "everyone to fly". Air Deccan's tremendous growth in the industry induced other players to play for their luck. Two of the new entrants, SpiceJet and IndiGo started operation in May 2005 and August 2006 respectively followed Air Deccan model with very competitive fares, no frills, a solitary type of aircraft with a single service class and e-ticketing.

Other airlines named Kingfisher, Paramount, and GoAir started by high-flying business houses followed diverse approaches to enter aviation business. Kingfisher Airlines introduced luxurious service "Kingfisher First" for its business class travellers while, Paramount airways entered the aviation industry as an economically priced business class airline. Unlike the steady expansion strategy adopted by other similar air-carriers, GoAir adopted a "dynamic fleet strategy" under which GoAir used to reduce its fleet in the lean season to reduce operational cost.

The astonishing low fares offered by "Low Cost Carriers" changed the growth dynamics of the industry and domestic passenger traffic took a high jump from 13 million in 2002-3003 to a 42 million by 2006-2007.

Restructuring of the Indian Aviation Industry

The future growth of Indian aviation industry was further hindered by several factors including airport landing and navigation charges at Indian airports, which were amongst the highest in the world (Sanjai, 2007). Increasing competitive pressure to keep low fares with increasing operation expenses threatened the endurance of comparatively less efficient airlines. This was the time when Jet triggered the quest for leadership in terms of size and market share by acquiring Sahara. This acquisition gave Jet Airways access to Sahara's fleet and, more importantly, Sahara's parking slots at major Indian airports.

An even larger acquisition followed; Kingfisher acquired controlling stake in Air Deccan in mid 2007. After the merger, Air Deccan was renamed Simplify Deccan and subsequently Kingfisher Red, the low-cost service of Kingfisher Airlines. The

third major consolidation followed and two Indian national carriers Indian Airlines and Air India were merged into a single national entity under the brand name "Air India". Consolidation was expected to facilitate the sustainability in the long-term.

Despite integration of several airlines, it was clear by May 2008 that the Indian aviation industry was in severe trouble. The sharp increase in fuel prices[5] at the end of May 2008 was expected to further accelerate the downturn in performance. Growth in demand dropped with hardly any instances of any airlines reporting profits (ICRA, 2012). Overall, Indian aviation sector recorded a negative growth of 4.66% in the year 2008 (Press Trust of India, 2009). As a result of mounting losses, MDLR Airlines which started its operation in 2007, suspended the same by November 2009 and by August 2010 paramount was forced to cease its operation. Kingfisher and Kingfisher Red airlines were grounded in 2013.

A new wave of Development

In September 2012, Indian government allowed foreign airlines to take up 49% stake in India's domestic air-carriers, a step that was expected to give a boost to cash-strapped aviation industry. Allowing foreign airlines to pick up stakes in Indian carriers has been a long-pending demand of the aviation sector (Press Trust of India, 2012). In March 2013, AirAsia announced a joint venture with Tata Sons and Telestra Trade place. According to KPMG, the introduction of AirAsia was expected to cause another price war, ultimately leading to an increase in air traffic and some consolidation in the Indian aviation sector. Tata Sons entered into another joint venture with Singapore Airline and commenced operations in January 2015 as a full-service premium carrier under the brand name "Vistara".

Since 2013, as many as seven private air-carriers entered the industry including AirCosta, AirAsia India and Vistara. These new entrants have started chipping away the market share of long established airlines. Operating with modest fleets, the new airlines; mainly Vistara, AirAsia India and AirCosta, increased their market share from 2.5% in January 2015 to 5.8%[6] in January 2016 (Directorate General of Civil Aviation, 2016). Market share of Jet Airways, Air India and Spice Jet fell by 0.8%, 0.7% and 0.3% respectively in March 2016 compared to previous month (Press Trust of India, 2016).

3. Bankruptcy Analysis for Selected Indian Air-carriers

The aim of bankruptcy studies based on the pragmatic evidence is to identify financial distress of companies which are likely to file bankruptcy. The Indian aviation industry has gone through a turbulences period and has witnessed many cases of failures since its inception. However, the impact is that the overall bankruptcy risk remains evidently always high. Untapped potential is high too, but in an atmosphere charged with bankruptcy risks the ground seems not very fertile and favorable for the players in the long-run. Moreover, the industry can only grow on a stronger turf. Otherwise, the potential will also remain underutilized too.

The listed bankruptcies in history of Indian aviation industry have produced an interest to analyze the likelihood of major Indian Air-carriers' potential for going bankrupt in the nearest future. Also, careful screening of firms that exit bankruptcy can improve on the effectiveness of the reorganization process (Altman E. I., 2009). With this in mind, a detailed financial study is proposed to identify the bankruptcy possibilities of the industry as a whole.

Models for predicting bankruptcy

Predicting a business failure is a scientific field and many researchers, academicians and professional people have been working on it, at least, for the five last decades. The first empirical methods to predict business failure were proposed by large banks in USA; the "Five C" method (The 5C's are Capacity, Capital, Collateral, Conditions, Character), the "LAPP" method (Liquidity, Activity, Profitability, Potential), and the "credit-men"[7].

The literature on prediction of bankruptcy dates back to the 1930's, beginning with the initial studies pertaining to the use of ratio analysis to predict bankruptcy. In 1930, the Bureau of Business Research (BBR) published results of ratio based analysis of failing firms in a bulletin. Half a decade later, Smith and Winakor came out with a follow-up study and provided evidence that there was a significant drop in the

current assets to total assets ratio for the firm that approached bankruptcy. In 1942, Merwin published his study on business failure reported that when comparing a failed firm with a successful one, the former displayed signs of sickness as early as five years before the actual failure.

The early models used for bankruptcy prediction were univariate and most widely recognized univariate study is that of Beaver, 1966. Beaver was the first to recognize that not all the ratios predict equally (Beaver, 1966). The univariate models laid the groundwork for multivariate bankruptcy prediction models. In 1968, Altman proposed the first multivariate model for predicting the business failure risk, which remains very popular in the literature even today. Since the work of Altman, several studies proposed other methods to surmount some of the disadvantages that are inherited in discriminant analysis and to provide higher accuracy for the prediction of a failure. Among these, we can quote the study of Ohlson (Ohlson, 1980) for using logit analysis and the study of Zmijewski (Zmijewski, 1984) for using probit analysis. The recursive partitioning algorithm was first employed by Frydman (Frydman, 1985), while Gupta (Gupta, 1990) used mathematical programming methods.

Other methods used were expert systems by Messier and Hansen (Messier & Hansen, 1988), survival analysis by Luoma and Laitinen (Luoma & Laitinen, 1991), neural networks by Altman (Altman, et al. 1994) and multifactor model by Vermeulen (Vermeulen, et al. 1998). Moreover, several methods were developed based on multi-criteria decision aid methodology (MCDA) and classified firms into categories according to their business failure risk (Zollinger, 1982; Siskos, 1994; and Dimitras, 1995).

In 1982, Rough set theory was introduced by Pawlak for the purpose of predicting business failure. It attracted the consideration of many researchers, academicians and practitioners around the globe, who then contributed to its development and applications such as Pawlak, 1991; Slowinski, 1992; Ziarko, 1994; Pawlak and Slowinski, 1994; Lin and Wildberger, 1995; Pawlak, Grzymala-Busse, Slowinski and Ziarko, 1995. More recently, researchers are using neural networks to perform business failure analysis; Raghupathi, Schkade, & Raju, 1993; Boritz and Kennedy's, 1995; and El-Temtamy, 1995. An analysis of accuracy of the various models suggests that MDA (multivariate discriminant analysis) and neural networks are the most promising models for predicting bankruptcy (Bellovary, 2007).

Several bankruptcy prediction models have been used in the past century. Univariate analysis progressed to Multivariate Discriminant Analysis. Logit/Probit analysis came next. Recursive Partitioning Algorithm was followed by Neural Networks. Finally, "Doubly Stochastic Poisson" intensity approach is the latest bankruptcy prediction model. Although, Aziz & Dar (2006) show evidence that using AI (artificial intelligence) models perform marginally better over other statistical and theoretical models but till date "Multiple Discriminant Analysis" (MDA) and "Logit" models tend to dominate bankruptcy predictive models.

This research paper places an emphasis on the analysis of six major Indian air-carriers' potential bankruptcy using three different statistical techniques for forecast bankruptcy and/or financial stress with an objective to determine the operational and financial efficiency of selective airlines and suggest strategies to safeguard the company from the sign of bankruptcy. The three models were chosen on the basis of literature and their predictive efficiency. A purposive sampling[8] method is used to select the sample. Since the study is mainly focused on analysis of financial performance and examining the insolvency of selective Airlines, the researcher had given importance to collect secondary data from company websites, annual reports, audited financial statements and reports published by the BSE.

Based on the results of these models, a conclusion is then drawn whether the selected Indian air-carriers remain potential bankruptcy candidates. The models are:

- ***Altman Model or Z-Score Model***
- ***The Pilarski or P-SCORE Model***
- ***A "Fuzzy" Logic Model***

Altman's Z-score Model

The Altman Z-score model has been used in aviation industry to successfully predict air carrier failures as early as the 1980's

where it correctly presaged the bankruptcy filings of both Braniff and Continental (Gritta R. , 1982). The results of a study by Gritta (Gritta, et al. 2006) clearly shows the usefulness of the **Z-Scores** in both assessing the relative financial strengths and depicting early warning signs for the major air-carriers. In 2008, another study by Richard D. Gritta employed the Z-Score model to assess the financial condition of the major U.S. air-carriers. Of the 15 air-carriers assessed, most have had a Z-Score in the bankruptcy zone for years of the study period (1995-1997); in fact, seven filed Bankruptcy (Gritta, et al. 2008). An assessment of efficacy of Z-Score predictive models by Angus Unegbu and James Adefila showed that "For Transport & Aviation Sector, the right predictive efficacy of Z-Score model increases up-to 100% as the year tends towards failure" (Unegbu & Adefila, 2013). In Indian context, a study on kingfisher airlines showed that financial position was not healthy during the study period (2007-2011) and unit was considered to be in bankruptcy zone (Togadiya & Trivedi, 2012). Another study on Indian aviation sector showed that "Kingfisher airline was on the verge of bankruptcy" and the Z-score results were worse for the year 2012 (Vasantha, et al. 2013).

The Altman Z-Score function:

Z = 1.2X1+1.4X2+3.3X3+0.6X4+0.99X5 (Equation 3.1)

Where:

X1 = Working capital/Total assets

X2 = Retained Earnings/Total assets

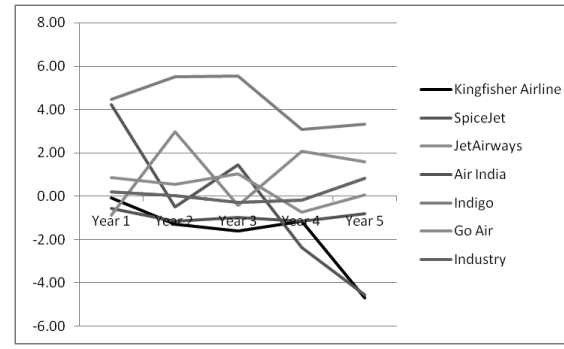
X3 = Earnings before interest and taxes/Total assets

X4 = Book value of equity/Book value of total liabilities

X5 = Total Sales/Total assets

Classification	Limit of Z
Safe_zone	**Z > 2.99**
Bankruptcy_zone	**Z < 1.81**
Gray_area	**1.81< Z < 2.99**

Figure 3.1: Z-Score Analysis of selected air carries and industry as a whole.



The Pilarski Score Model

Logistic regression analysis has also been used to forecast financial stress and has become widely accepted (Ohlson, 1980). The Logit models estimate the probability of bankruptcy and **P-Score** have been used for estimating financial stress for air-carriers (Pilarski & Dinh, 1999). The P-Score model was used by Gritta to assess the financial condition of the major carriers and it was found the model provided superior results over other models (Goodfriend, et al. 2005). The P-Scores model flashed warning for American, Delta and Northwest and two carriers filed for bankruptcy in October 2005. The model is as below:

W = -1.98X1-4.95X2-1.96X3-0.14X4-2.38X5 (Equation 3.2)

Where: X1 = operating revenues/total assets

X2 = retained earnings/total assets

X3 = equity/total debt obligations

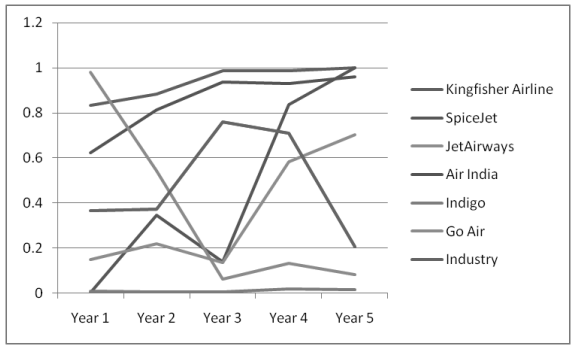
X4 = liquid assets/current maturities of total debt obligations

X5 = earnings before interest and taxes/operating revenues

The number P is determined by: **P = 1/[1+e-w]**.

P is the *probability of bankruptcy* and higher the **P value**, the greater is the financial stress and the chance of bankruptcy. **P-Score** is used by the U.S. Department of Transportation to track financial strength.

Figure 3.2: P-Score Analysis of selected air carries and industry as a whole.



Fuzzy Logic Model

Several researchers have utilized yet another approach to forecasting air carrier insolvency. Approaches like Spanos and Dounias (Spanos, et al. 1999), Thomaidis and Gounias (Thomaidis, et al. 1999), Chena and Huangb (Chena, et al. 2009), used fuzzy logic-based prediction systems. In their studies Spanos and Dounias (1999) and Chena and Huangb, et al. (2009) mentioned that the results of the prediction based on fuzzy logic are better than using classical models. Tomasz Korol (Korol, 2012) has proven that fuzzy logic can be a very useful and powerful tool in financial analysis, and the results of this study showed that fuzzy logic produced superior results over Altman's Z-Score. Silva, A. Espirito Santo, and Portugal (Silva, et al. 2005) employed a multivariate technique called Hybrid Financial Statement Analysis (HFSAT[9]) to test several American and Brazilian carriers' financial conditions and to profile the risk of bankruptcy. HFSAT is the result of a discriminant analysis multiple-variable model and the application of Fuzzy Logic to a firm's financial data. The model used is as below:

$$Z = 2.637 - 0.879X1 + 0.466X2 - 0.268X3 - 0.28X4 \quad \textbf{(Equation 3.3)}$$

Where:

X1 = Shareholder Funds/Total Assets

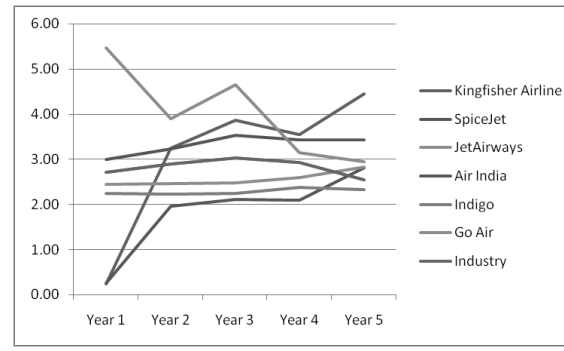
X2 = (Current Liabilities + Long Term Liabilities)/Total Asset

X3 = Net Operating Revenue/Total Assets

X4 = Fixed Assets/Total Assets

Classification	Limit of Z
Healthy	$Z \leq 1.862$
Low Risk	$1.862 \leq Z \leq 2.2$
Moderate Risk	$2.2 \leq Z \leq 2.515$
High Risk	$2.515 \leq Z \leq 2.73$
Insolvent	$Z \geq 2.73$

Figure 3.3: Fuzzy Z-Score Analysis of selected air carries and industry (Data source: Capitaline Plus) as a whole.



4. Results

Altman's Z-score, The Pilarski or P-Score Model and a "Fuzzy" Logic Model described earlier have been analyzed for six Indian biggest airlines, including national carrier: Air India and five other private air-carriers: Indigo, Jet Airways, Spicejet, GoAir and Kingfisher airlines. The results (consolidated) are illustrated in the table 4.1.1.

4.1 Consolidated Results

The results of all three models implicated indicate similar results and show that, Air India, the national carrier has negative Z-score, high P-score and High fuzzy Z-Score values for five successive years which implies that they have been in so-called "bankruptcy zone" with a high likelihood of going bankrupt in the following years. Air India has rarely been out of the news headlines, but frequently for the erroneous reasons. Financial difficulties or simmering disputes with staff are a recurrent issue with the airline. As shown in the table

4.1.1, among other carriers Kingfisher and SpiceJet airlines have had the lowest Z-values and high bankruptcy probability of as per P-score and Fuzzy Z-score which, in fact, explain Kingfisher being grounded in 2013 and SpiceJet hitting the news for being on the edge of bankruptcy in 2014. While the other airlines; Indigo, GoAir and Jet Airways were able to maintain better scores and encompassed some consolidation in their financial strength. However, Indigo and GoAir were the only airlines amongst these six air-carriers to report profit consistently.

Table 4.1.1: Results of Various Models for Selected Indian Air-carriers

	Year	Z-Score	P-Score	Fuzzy Logic
Kingfisher Airline	2008	-0.08	0.83	0.24
	2009	-1.31	0.88	3.26
	2010	-1.62	0.99	3.88
	2011	-1.17	0.99	3.55
	2012	-4.70	1.00	4.46
SpiceJet	2010	9.03	0.25	-2.98
	2011	4.22	0.00	0.26
	2012	-0.50	0.35	1.95
	2013	1.45	0.14	2.11
	2014	-2.39	0.84	2.09
Jet Airways	2010	0.64	0.21	2.91
	2011	0.87	0.15	2.44
	2012	0.55	0.22	2.46
	2013	1.04	0.13	2.47
	2014	-0.75	0.58	2.59
Air India	2010	-0.20	0.62	2.99
	2011	-0.58	0.81	3.22
	2012	-1.15	0.94	3.53
	2013	-0.97	0.93	3.44
	2014	-1.16	0.96	3.44
Indigo	2010	4.44	0.01	2.24
	2011	5.51	0.00	2.23
	2012	5.53	0.00	2.24
	2013	3.06	0.02	2.38
	2014	3.31	0.01	2.34

	Year	Z-Score	P-Score	Fuzzy Logic
Go Air	2010	-0.87	0.98	5.47
	2011	2.98	0.54	3.90
	2012	-0.41	0.06	4.66
	2013	2.09	0.13	3.15
	2014	1.61	0.08	2.95
Industry	2010	0.19	0.36	2.71
	2011	0.02	0.37	2.90
	2012	-0.27	0.76	3.03
	2013	-0.17	0.71	2.93
	2014	0.81	0.20	2.54

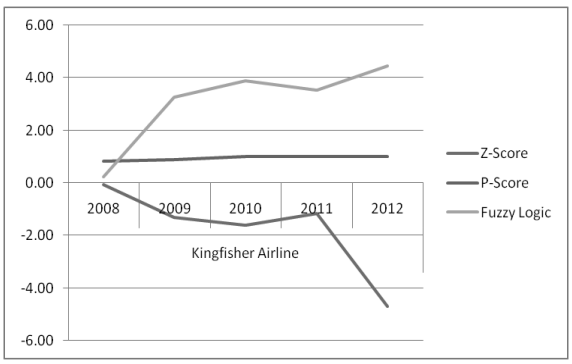
Source of secondary data: Capitaline plus, BSE and company website.

4.2 Individual Firm Analysis

Kingfisher Airline

Kingfisher Airlines which is a wholly owned subsidiary of UB Group Ltd. was launched in May 2005. After a year of operations, the airline abruptly shifted its focus to luxury and subsequent to its merger with Air Deccan, launched its international flights as well as low-cost services. Kingfisher had too many changes in their business model and approaches that led to strategic failure and this had major influence on the airline because haphazard expansion did not give time for the airline to stabilize.

Figure 4.2.1: Altman Z-Score, P-Score and Fuzzy Z-Score for Kingfisher Airline

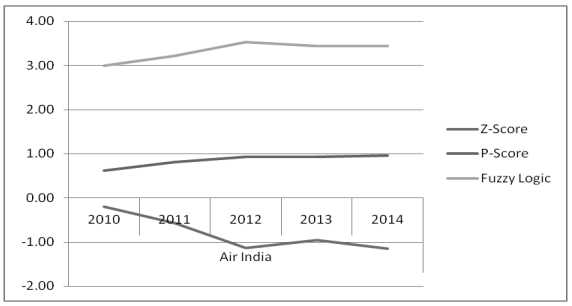


The results of all three models were able to depict the degrading situation of Kingfisher Airlines over the years with a clear indication of bankruptcy in the following year. Kingfisher and Kingfisher Red airlines were grounded in 2013. The case of kingfisher airlines shutting down its operation after not been able to maintain good score over years for any of the three methods tested here clearly indicate the credibility and usability of such tools.

Air India

Air India, was sitting on borrowings of over Rs 51,000 crore till March 31, 2015. As per the Turnaround Plan (TAP), the equity infusion by the Government into Air India also includes Rs 18,929 crore for the repayment of the government-guaranteed loans/interests till FY 2020/21. Since government is the owner of Air India, the airline seems to have a perpetual cushion to fall back on, something no private airline can boast of.

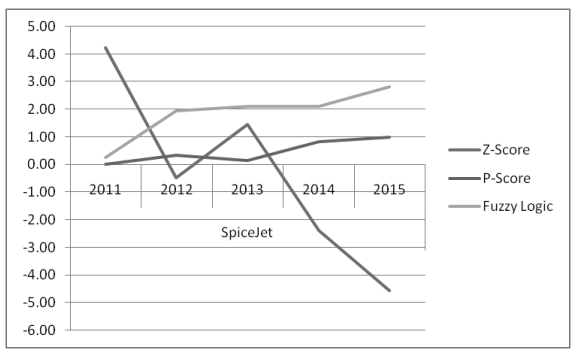
Figure 4.2.2: Altman Z-Score, P-Score and Fuzzy Z-Score for Air India



Spice Jet Ltd.

Spice Jet has been in active operations since 2005 and grown since than to become the second largest airline in the country (domestic market share). Despite the improved operational performance (FY 2014-15), liabilities coupled with extensive delays in funding expected from external sources created immense cash flow pressure leading to the financial distress and a near closure situation for Spice Jet in December 2014. Spice Jet was also forced to reduce the available fleet size resulting in a further distressed operating cash flow position. In 2015, Mr. Ajay Singh took over the control and management of the Company from Mr. Kalanithi Maran and Kal Airways Private Limited and implement a reconstruction and revival plan in order to restore the Company's operations and its previous market position.

Figure 4.2.3: Altman Z-Score, P-Score and Fuzzy Z-Score for SpiceJet

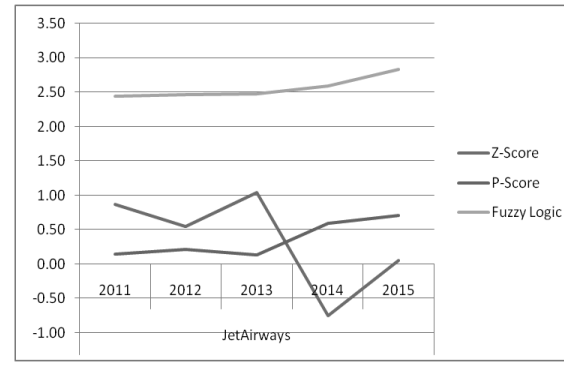


As depicted by the results of all three models, SpiceJet faced a near closure situation in 2014.

Jet Airways

Jet Airways was incorporated in 1992 and its full-fledged operations were started in 1995. Jet Airways acquired Air Sahara in 2007 and by 2010, became the largest carrier in the country before being eclipsed by IndiGo in 2012. Jet Airways was forced to sell its stake to Etihad air due to its mounting financial trouble.

Figure 4.2.4: Altman Z-Score, P-Score and Fuzzy Z-Score for Jet Airways

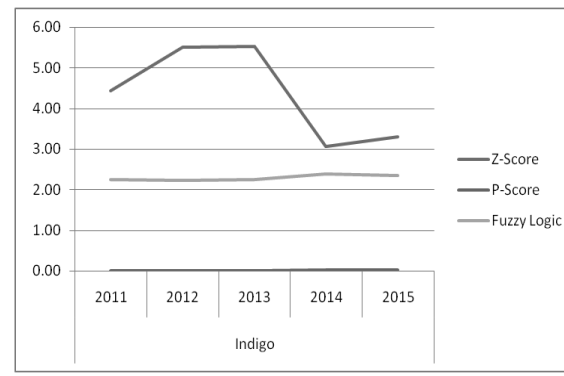


As shown by the results after a hiccup in 2014, Jet Airways improved on its financial in FY2015.

Indigo Airline

IndiGo, the Gurgaon-based LCC "Low Cost Carrier" has reported a profit after tax of Rs 1989.72 crore for the fiscal 2016, an increase of 52.6 per cent of over the previous year. Indigo is the only airlines to report the eighth consecutive year of profitability with highest-ever yearly profits in 2016.

Figure 4.2.5: Altman Z-Score, P-Score and Fuzzy Z-Score for Indigo Airlines



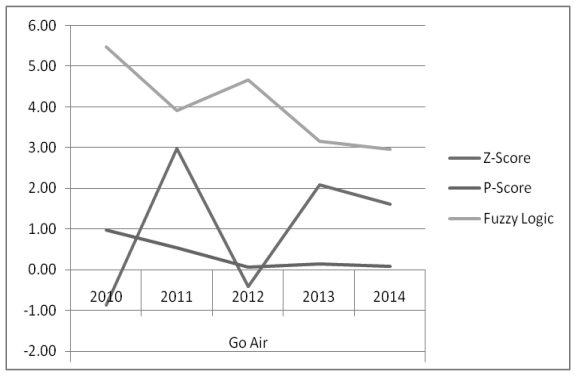
The results of all three models depict a healthy financial situation for Indigo Airline and zero probability of bankruptcy.

Go Air

The Mumbai-based GoAir, which is promoted by Wadia Group, is making net profits for the past three financial years. As of February 2016, it is the fifth largest airline in India with an 8% passenger market share.

GoAir's ability to make consistent profits has surprised many but the airline says it follows the proven low-cost carrier (LCC) model. It is believed that Go Air and Indigo airlines are likely to take away the passenger traffic from SpiceJet that would translate into higher market share, better revenues and, in a way, increase profits.

Figure 4.2.6: Altman Z-Score, P-Score and Fuzzy Z-Score for Go Air



The results of all three models depict a healthy financial situation for GoAir Airline.

5. Concluding Observations

Bankruptcy usually affects all the stakeholders' including employees, stockholders, investors, managers and regulators. Companies can be sheltered against bankruptcy with dexterous management of funds and well defined business strategies. Companies can deal the financial distress by disposing of real properties and may also decide on to sell stocks holding so as to improve working capital of the company.

The analysis of three different models has showed unfavorable results for the Indian air-carriers (except Indigo and GoAir Airlines), which implies that there exist a risk of bankruptcy. Indian national carrier; Air India has a negative Z-score values and high probability of bankruptcy as per P-Score for all five years presented. Jet Airways was able to improve on its financial distress situation after selling its stake in Ethait Airways. Indigo and GoAir airlines which are considered as the largest low-cost Indian air carrier displayed the best results, especially in 2013 when Indigo's the Z-score reached 5.53 and Zero probability of bankruptcy as per P-score. Kingfisher Airlines had the worst results of Altman's Z-score during 2010-2012 and eventually was grounded in 2013.

In addition, we can conclude that according to Altman's Z-socre, P-Score and Fuzzy Z-Score models for predicting bankruptcy, four[10] out of six selected Indian air-carriers except for Indigo and GoAir airlines remain potential bankruptcy candidates despite all the improvements in the Indian aviation industry. Undoubtedly, potential bankruptcy will hinge on the future demand for air transportation services, the degree of fuel prices volatility and the pace of growth of Indian, the intensity of the competition and the rest of the world's economy.

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Foot Notes :

[1]Both national carriers were merged in 2007 under the brand name "Air India".

[2]An air taxi is a small commercial aircraft which makes short flights on demand.

[3]Indian air-carriers paid about $1.70 per gallon of ATF (Aviation Turbine Fuel) compared to an international price of $0.60 per gallon

[4]later successfully adopted by other air-carriers including Ryan Air and JetBlue

[5]In May 2008, India's oil companies announced a 19% hike in the price of Aviation Turbine Fuel shaking the Indian airline industry. With this hike, Aviation Turbine Fuel prices had roughly doubled in a year, and tripled in four years.

[6]Air Pegasus and TruJet are also included in 5.8% figure, which started services in 2015 and got a market share of 0.3% and 0.4%, respectively.

[7]The first research on bankruptcy risk analysis has been developed in the USA in the early 1930'. The method was called "credit-men" and it aimed at making assessments on the financial situation of an enterprise by means of a synthetic note, thus establishing the position of an enterprise as compared to that of a typical enterprise in the same industry. The purpose of this model was to study risk in credit granting, including an extension of risk analysis by including certain variables linked o the human factor and the global economic environment.

[8]Purposive sampling, also known as judgmental, selective or subjective sampling, is a type of non-probability sampling technique. Non-probability sampling focuses on sampling techniques where the units that are investigated are based on the judgment of the researcher.

[9]Silva, A. argue that the HFSAT application has the following advantages: It can classify a firm's financial condition using a consistent theoretical base; it frees the analyst from the slow process of investigating a company's financial structure by means of a large set of indexes; it is a functional and easily implemented algorithm; its quantitative and qualitative measures are intuitive to the analyst; and it can be used to compare companies in different markets, since the source data includes all the same classification criteria.

[10]Kingfisher Airlines already declared bankruptcy and was grounded in 2013.

Capital Structure and Capital Budgeting: An Empirical and Analytical Study of the Relationship

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Abstract:

Due to operational constraints researchers in the field of financial management study one finance function in an isolated manner and leave other functions untouched; it creates an impression that finance decisions are disjoint sets of functions. Contrary to this, in the light of systems approach to management, the paper asserts that different finance functions are inter-related; it stresses on development of comprehensive model encompassing various components of financial management so that the decisions can be taken more objectively. As a first step, the paper examines the relationship between capital structure and capital budgeting with the use of three different methodologies, - theoretical, experimental and empirical. The paper points to the mistaken beliefs prevailing in the area and presents the true relation with experimental verifications. Empirical tests fail to prove the validity of the conventional belief that there is positive relation between leverage and value of the firm. Data and the results obtained from data analysis indicate that the actual relation between capital structure and capital budgeting is diametrically opposite to what is conventionally understood. The paper asserts that the relation, which is getting shaped under accounting and legal framework of the land should be duly complied with; otherwise, firms may be exposed to severe financial risks.

Key Words:

Capital Structure, Capital Budgeting, Financial Management, Leverage, Net Present Value (NPV), Financial Risks

1. Statement of the Problem

Different finance functions are discussed in different chapters in the text-books of financial management; 'the way things are discussed' gives an impression that these functions are separate from each other. Contrary to this belief, the fact is that there are plenty of inter-relationships and inter-dependence between different categories finance functions, which are required to be captured in a model to impart a comprehensive sense to learning and practice of finance theory. Impact of a decision taken under a finance function is instantly transmitted to other different finance functions automatically. For example, investment decision and capital structure decisions are complementary; investment decision, dividend decision and liquidity management jointly contribute to shareholders' value. In the light of systems approach to management (Daniel Katz and Robert Kahn, 1966), whole finance management can be viewed as a set of different sub-sets of specialized finance functions inter-acting with each other.

This paper re-examines the relationship between capital budgeting and capital structure. To achieve this goal, the paper starts with conventional theoretical framework. Subsequently, experimental and empirical methodologies have been used to arrive at the truth that is reflected in industrial practice at work.

This paper, instead of looking at the organization as a system, looks at the finance function, which consists of mobilization and utilization of finances, as miniature system. The focus of this paper is on examining the inter-relationship of various types of finance function and their combined effect on the value of the firm, which has been measured in terms of market value addition.

2.0: Research Background

Literature in the area of capital structure and capital budgeting are abundant. In the first part a brief review of literature on capital structure has been presented. Literature survey of capital budgeting has been presented in the second part.

2.0.1: Literature on Capital Structure

A systematic effort towards the theory of capital structure begins with the publication of Modigliani and Miller's (1958) Leverage Irrelevance Hypothesis. The arguments of Modigliani and Miller are based on restricted assumptions of perfect capital market, investors' homogeneous expectations, tax free economy, no transaction cost, etc. Modigliani and Miller showed that when firm chooses a certain proportion of debt and equity to finance its assets, operating earning gets distributed between two types of investors, bond-holders and stock-holders. According to the hypothesis, as the investors have equal access to financial markets, the mode of financing alone cannot make any difference in the value of the firm. If really any temporary difference exists between the value of levered and un-levered firms, soon it will tend to get evaporated due to work of arbitrage operation. Therefore, designing a levered capital structure, a firm cannot change market value of the firm. Though this capital structure irrelevance hypothesis seems absurd, however, it simply imparts a sense that as the perfect capital market is non-existing, capital structure decision is important in real terms. Later many important developments have occurred; some of those original developments have been briefly presented below.

Jensen and Meckling (1976) point to the existence agency cost and argue that true cost of capital is much more than what it should be; due to this extra load of agency costs, which makes firms' value lower than what it ought to be. Williams (1987) argues that higher levels of debt diminish the agency costs because of the presence of increased threat of bankruptcy. Hence, high degree of leverage reduces agency costs and increases firm's value.

Myers and Majluf (1984) also suggest that firms may find it advantageous to sell secured debt. Their model demonstrates that there may be costs associated with issuing securities about which the firm's managers have better information than outside shareholders. Issuing debt secured by property with known values aids in avoiding these costs. Firms with assets that can be used as collateral may be expected to issue more debt to take advantage of this opportunity. Myers and Majluf observe that managers follow a pecking order, using up internal funds first, then using up risky debt and finally resorting to mobilization of equity capital. In the absence of investment opportunities, firms retain profits and build up financial slack to avoid the costs of raising external finance. Further Stulz and Johnson (1985) state that secured debt can be used to increase the value of the firm.

Titman Sheridan (1984) presents stakeholder theory and explains how interest of non-financial stakeholders can affect capital structure decision of a firm. Brander, Lewis and Tracy (1986) present Leverage Aggressive Hypothesis and explain how companies can resort to high degree of leverage to fight competition in product market.

In India a plenty of studies have been conducted to trace the impact of macro-variables on capital structure of firms; Shanmugasundaram (2008) examines the variations in the capital structure of pharmaceuticals industry in India over time. He explores that debt-equity ratio is positively related with the proportion of fixed assets to total assets and growth rate. Majumdar and Sen (2010) study effects of debt on strategic behaviour of firms. They observe that the firms give

priority to flexibility in matters of spending on advertising and diversification; thus they choose to abstain from borrowing from term lending institutions. Roy et al. (2011) examine the inter-relationship between product market competition and capital structure of Indian firms. They observe that structure of product market has influence on the short-term debt ratio only, whereas long-term debt ratio is linked to performance of the company.

According to Kraus and Litzenberger (1973) bankruptcy costs and taxes on corporate profits are the fundamental variables affecting capital structure and the value of the firm. Theoretically, the level of borrowing, where tax benefit of extra debt is equal to cost of financial distress resulting from borrowing, is defined as optimum leverage ratio.

Fischer et al. (1989) accommodate trade-off theory and pecking order theory into a dynamic model. They show that instead of remaining stick to a static optimal leverage ratio, firms employ dynamic leverage ratio varying within a stipulated range depending on firm specific factors and costs of bankruptcy. DeAngelo et al., (2011) introduced the concept of transitory debt, what is temporarily inducted into capital structure to reap the immediate advantage of profitable investments. It means that firms may temporarily deviate from optimum capital structure to fund new investments and subsequently they adjust the resulting structure gradually to optimum structure as the investment begins to produce inflows.

Barclay and Smith (1999) observe that it is difficult to state what exact variables can guide the practicing CFOs in making their capital structure decisions. Denis David J (2012) observes that standard models of capital structure do not explain the actual industry trend of capital structure practice of the firms. The scholars have been trying to understand how the firms' capital structure may affect the intrinsic value of the firm.

2.0.2: Literature on Capital Budgeting

Net Present Value and Internal Rate of Return are the most commonly used tools of financial appraisal in Capital Budgeting. While maximization of shareholders' wealth is taken to be the firm's objective, NPV method seems befitting for appraisal of capital budgeting proposals. The excess of present value of future cash inflows over the cost of investment is defined as Net Present Value. For computing the absolute value of NPV, it requires discounting of future cash inflows at an acceptable discounting rate. Companies often use weighted average cost of capital, which represents average cost of each dollar used to fund the project, for discounting. A single project having a positive NPV is recommended for acceptance, because the positive NPV is taken as an index of shareholders' value addition. However, for choosing one of the mutually exclusive projects, the project that offers higher NPV figure is accepted, because it reflects the better potentials of value addition compared to other competing projects.

Studies on Capital budgeting are also varied and numerous. Presenting findings from industry survey is the notable feature of the majority of the studies. Notable of the foreign studies are there to the credit of Gitman and Forrester (1987), Pike (1996), Arnold and Hatzopoulos (2000), Graham and Harvey (2002), Ryan and Ryan (2002), George Kester and Geraldine Robbins (2011), Lu Jin-Ray, et al (2015). In India notable of such studies have been done by Porwal L S (1976), Pandey I M (1989), Babu Prabhakara C (1996), Anand Manoj (2002), Shah Kamini (2008), Yadav Vinod Kumar (2013). A survey of these studies reflects a generalized finding that the corporate houses have gradually shifted to DCF and other sophisticated methods from the past practice of using traditional non-DCF models.

Quite different line of thinking has been noticed in the studies of Carr, Chris et al. (2010), Shapiro Allan (2013), Kaplan and Atkinson (2003); they have handled the issues of strategy and technology. Organizational factors and decision-making mechanism down the hierarchical layers have been analyzed by Bower Joseph (1970). Later Karsyte Agne (2011) has focused attention on the process of capital budgeting; the scholar observes that management in the organization has different objective other than shareholders' wealth maximization; so, they try to influence the outcome of the decisions so that interests of management is better served. These observations are in line with the managerial models of Williamson O (1963) and Marris R (1963).

3. The Research Gap

Systematic investigation of inter-relationship between capital structure and capital budgeting is almost absent; some researchers like Anand Manoj (2002) surveyed both the areas simultaneously; but relationship has not been empirically examined by them. It creates a research gap and suggests that some empirical studies should be undertaken to verify the relationship at work in industrial practice.

4. Objective of the Study:

The objective of the study can be enumerated as below:

a) To re-examine the conventional relationship between Capital Structure and Capital Budgeting.

b) To undertake an experimental analysis of the inter-relationship between Capital Structure and Capital Budgeting and point to the gaps in the theoretical extracts.

C) To conduct an empirical study of the inter-relationship between Capital Structure and Capital Budgeting and trace the true relation existing between these two finance functions at operational level.

5. Methodology:

This is a multi-faceted study. Initially it begins with re-examination of conventional theoretical relations. To meet this goal, leverage has been incorporated as a variable in the model of capital budgeting. In the second step, experimental analyses have been made on the basis of sensitivity analysis; the result of this analysis is subsequently compared with conventional relation studied at the first step to pinpoint the areas of similarities and differences. Finally, an empirical analysis has been done on the basis data gathered from survey of 30 companies listed on NSE.

The empirical study is based on secondary data available in the annual reports of the companies. This is also based on share price data obtained from stock market data-base. Statistical analysis such as chi-square test and correlation analysis have been made to arrive at the statistically valid inferences.

Part – I: Conventional Theoretical Analysis

Conventional Model: Re-examining Relationship between Leverage and NPV

In the first column of Table 1the relationship between capital structure and capital budgeting has been developed. The notations used have been defined in the second column of Table 1. In this discussion debt to Asset ratio has been taken as a proxy measure of leverage.

Table 1: Theoretical Relationship between Capital Structure and Capital Budgeting

Given the basic valuation model $NPV = \sum_{t=1}^{n} \frac{C_t}{(1+k)^t} - C_0$ --- (I) $Where \quad k = w_d k_d + w_e k_e$ $k = \frac{D}{A}k_d + \frac{E}{A}k_e = \frac{D}{A}k_d + (1 - \frac{D}{A})k_e$ Re-arranging the equation we ge $k = k_e - (k_e - k_d)\frac{D}{A}$ *Putting* the value of k in equation (I) we get $NPV = \sum_{t=1}^{n} \frac{C_t}{[(1+k_e-(k_e-k_d)\frac{D}{A}]^t} - C_0$	Where C_t is cash flow of year t C_o is the initial Investment cost w_d = weights of debt w_e= weights of equity D/A = Debt to Asset Ratio Note: Theoretical presentation of this table is based on the discussions of Brigham and Houston (2003) made in the book entitled Fundamentals of Financial Management

The final equation explains that higher the degree of leverage, lower the discounting rate, which means higher is the value of the firm. In the valuation model, Ct is equivalent to EBIT; interest (costs of debt) is not deducted from EBIT. The logic is that while cash inflows are discounted interest cost gets automatically adjusted. Hence, there is no need for deducting interest cost from EBIT.

Box 1 given below contains an example of a capital structure of Frim A, which also has an investment plan in Project X, shown in the lower panel. The simple example shown in box 1 shows that Firm A is raising $300, which gets totally invested in project X. With this example, the relationship between capital structure and capital budgeting will be examined from two different angles, conventional and practical.

Box. 1:

Balance Sheet of Firm A is given below			
Liabilities	$	Assets	$
12% Debt Equity share capital	200 100	Project X	300
	300		300
Note: Cash inflow figures represent EBIT. For simplification it is assumed that income of Firm A is subject to 40% tax. Cost of equity assumed is 16%. Hence overall cost of capital is .33×16 +.67×12(1 – 0.40) = 10.1%			
Investment Plan: Project X Cash Flow Pattern of Project X Year : 0 1 2 3 Cash flows: - $300 $130 $ 240 $ 120			

Table 2 is presenting conventional wisdom and Table 3 is presenting real position. Calculation shown in Table 2 and Table 3is based on information and values given in Box 1.

Table 2: Leverage and Capital Budgeting: Conventional Relationship

Debt to Asset Ratio	Ke	After tax k_d	ko	NPV
0.20	16%	7.2%	14.24%	78
0.33	16%	7.2%	13.10%	85
0.50	16%	7.2%	11.60%	95
0.67	16%	7.2%	10.10%	106
0.80	16%	7.2%	8.96%	114

Conventional valuation model has been used as the simplest way is to capture the relationship between capital structure and capital budgeting. The results shown in Table 2 reflect that as the degree of leverage is rising, the prospect of absolute value creation is also rising. The results obtained from numerical calculation, tabulated in Table 2, appear identical to the propositions of Net Income Approach of Capital Structure Theory. If the cost of equity is assumed to change with rising levels of financial risk associated with debt, the calculation will be definitely different. As the results are likely to be marginally different, trials of other versions of capital structure theory has been avoided.

Part – 2: Experimental Analysis
Cross-Checking of the Theoretical Relation

In the real industrial world the relationship is not so simple and straight forward as it has been illustrated in Table 2above. Till today one gross mistake that is getting committed unknowingly in the process of discounting is inadequate matching of the carrying cost of capital. The argument is that the discounted part of inflows stands as proxy for the cost of capital. Mistakenly, full cost of capital is not charged against benefits in the process of normative financial appraisal of an investment. This is illustrated below in the table 3. Here in the example, debt-equity ratio is assumed to be 2:1; hence, given the cost of debt and cost of equity, rate of discounting tends to be 10.10%

Table 3: Showing Inadequate Matching of the Carrying Cost of Capital

All figures are in $

Year	0	1	2	3	Total
Cash Flows	-300	130	240	120	
Present Value @ 10.1%	-300	118	198	90	
Costs charged as Discount	0	12	42	30	84
Carrying Cost of Capital		30.33	30.33	30.33	91
Shortfall in charging carrying cost of capital of the project					7

The calculation as shown in Table 3 reflects that in the process of capital budgeting, capital costs lower than 'full carrying cost of capital' is charged. The shortfall dependson the pattern of cash inflows.If the cash inflows are heavily concentrated in the early years, the shortfall will be greater; contrary to this, if the inflows are heavily weighted in later years, it will be lower. This can be explained with the example as given Table 3A below:

Table 3A: Shortfall of Carrying Costs and Pattern of Cash inflows

Year	0	1	2	3	Shortfall of carrying cost
Front Loaded: Project – A	-300	240	130	120	16
Calculation of the shortfall of carrying cost of capital calculated @ 10.1% p.a.					

Project - A shown in the second row of the Table3A is front loaded. The shortfall in charging the carrying cost is high. This phenomenon is going unnoticed by the accountants till today. An index of benefit computed by charging lower amount of costs to a project is a serious mistake that thoroughly distorts the economics of a firm. This paragraph is dedicated to bringing it to light that the relationship between capital structure and capital budgeting as embodied in conventional models is an incomplete truth or half-truth, because the models don't accommodate full carrying cost of capital.

Part – 3:
Leverage and Market Value Addition: An Empirical Test

This paragraph is dedicated to examining the relationship empirically from real industry data. This involves an empirical test undertaken to test the myth whether higher degree of leverage can magnify shareholders' value addition in real industrial world. For conducting the test a sample of 30 companies listed on NSE was selected.

Table 4: Market Value Addition and Degree of Leverage

Serial No	Name of the Company	D/A ratio	Absolute Price Change (Rs)	Shareholder Value: 2012-15
1	Idea Cellular Ltd.	0.4223	39.85	Increase
2	Reliance Communications Ltd.	0.4200	14.35	Increase
3	Tata Teleservices (Maharashtra) Ltd.	0.6279	-2.32	Decrease
4	Jet Airways	0.6176	143.55	Increase
5	Steel Authority of India Ltd	0.2463	-42.3	Decline
6	Jindal Steel & Power LTD.	0.5966	-351.6	Decline
7	Bhusan Power & Steel Ltd.	0.7341	-428.89	Decline
8	Tata Steel Ltd.	0.2639	-168.7	Decline
9	Hindalco Industries Ltd.	0.3814	-45.75	Decline
10	Tata Power Company Ltd.	0.3781	-38.59	Decline
11	NHPC Ltd.	0.3784	-4.45	Decline
12	Hindustan Copper Ltd.	0	-83.65	Decline
13	Balarampur Chimni Mills Ltd.	0.2758	20.65	Increase
14	Binani Cements Ltd.	0.8393	-58.55	Decline
15	Reliance Petroleum Ltd.	0.4881	3.4	Increase
16	Tata Chemicals Ltd.	0.2234	47.45	Increase
17	Tata Metallics Ltd	0.3309	38.8	Increase
18	Rossel India Ltd	0.0948	109.95	Increase
19	Ultra Tech Cement Limited	0.1965	794.25	Increase

20	Vedanta Aluminum Ltd.	0.4371	-105.05	Decline
21	Tata Sponge Iron Ltd.	0	187.95	Increase
22	Deepak Fertilizers & Petrochem Corpn	0.1814	36.45	Increase
23	Adani Power Ltd.	0.6840	-29.45	Decline
24	Rural Electrification Corporation Ltd.	0.8406	-18.65	Decline
25	Reliance Industries Ltd.	0.260	75.7	Increase
26	Infosys Ltd.	0.0009	525.72	Increase
27	National Aluminum Company Ltd.	0.0050	-9.05	Decline
28	OCL India Ltd.	0.4709	338.2	Increase
29	Reliance Infrastructure Ltd.	0.2874	23.4	Increase
30	Lupin Ltd.	0.0207	1223.4	Increase

Market Value Addition during the period from 2012 to 2015 is taken as a measure of shareholders' value addition. For measuring MVA, share prices of the selected companies as on 31st March 2012 and on 31st March 2015 were recorded. The difference between these two prices represents the absolute value addition during the period. Ratio of Debt to Total Asset is taken as a measure of leverage. As degrees of leverage may be different in different years, so, the average value of the three years' ratios has been taken as a suitable proxy for leverage of the companies. The data relating to market value addition and degree of leverage have been tabulated in Table 4 given above:

Summary result of the data shown in Table 4, has been presented in the form of a contingency table. See Table 4Agiven below. [HL means high leverage; LL means Low Leverage and NL means no financial leverage.]

Table 4A: Leverage and MVA: Contingency Table

	HL	LL	NL	Total
Market Value Increased	1	14	1	16
Market Value Deceased	8	5	1	14
	9	19	2	30

Two firms have been found to have no debt in their capital structure; yet, one of them records appreciation in its share price; however, the other has encountered a decline. In respect of no levered firm, as the probability of value creation is 50:50. This is being the Null Hypothesis,the column containing two unlevered firms has been dropped from analysis. The edited contingency table can be shown as below in Table 4B:

Table 4B: Leverage and MVA: Contingency Table

	HL	LL	Total
Increase	1	14	15
Decease	8	5	13
	9	19	28

Chi-square obtained from the table is 9.66, which is much higher than critical value 3.81 at 1df. Yet after Yates correction the value of chi-square is much higher than critical value 3.81. It means that there is an association between leverage and market value addition; however, the amazing thing is that this association is negative, which is contradictory to theoretical pronouncements discussed in the first part of the paper. This can be understood from the value of correlation coefficient

calculated from the data shown in Table 4. The correlation output has been given below:

Correlations

		Leverage	MVA
Leverage	Pearson Correlation	1	-.475**
	Sig. (1-tailed)		.005
	N	28	28
MVA	Pearson Correlation	-.475**	1
	Sig. (1-tailed)	.005	
	N	28	28

***. Correlation is significant at the 0.01 level (1-tailed).*

The result obtained from the study is contradictory to findings, which most of the contemporary researcher claim. Average debt to total asset ratio computed on the basis of data of all 30 companies is less than 38%. It shows that Indian firms depend more on equity than debt. Some companies like Maruti Suzuki carry almost 100% equity; this contrary to popular claim regarding operational truth of Pecking Order Hypothesis.

The correlation coefficient presented above indicates that companies having high leverage add lower value to shareholders' wealth. This is contradictory to the prevalent belief that leverage adds value to shareholders' wealth. This is due a hidden mystery, which needs to be carefully investigated. Findings of this study indicate that this may be due to gap between theory and practice, which has been examined in the following paragraphs.To explain the presence of this gap an example of Project ABC has been used. Two columns of Table 5 show what are practiced in accounting and economics. In this context it is necessary to note that NPV is nothing but an index of economic income.

Box. 2: Cash Flow Pattern a Project ABC

Year:	0	1	2	3
	C_0	C_1	C_2	C_3
Project II	– $300	$100	$200	$100

Note: Cash inflow figures represent EBIT. For simplification it is assumed that tax rate applicable to the company is 30%.

In this part it is assumed thatthe leverage ratio of company is 100%. The project is fully financed through 15% debenture; hence,at 30% tax rate, the after tax cost of capital is 10.5%. Given the data above, what are practiced in DCF and what is done Accountancy have been shown in two columns of the following table:

Table 5: Gap between Economics and Accountancy

Figures are in $

What is done in DCF				**What is done in Accountancy**			
Project – II				**Project – II**			
Year	Cash inflow	Discounting Factor@10.5%	Present Value	Year	**1**	**2**	**3**
1	100	0.905	90.5	Cash inflow	100	200	100
2	200	0.819	163.8	Less: Interest @15%	36	36	36
3	100	0.741	74.1	Net cash accumulation	55	155	55
Total Present Value			328.4	Total Fund in hand after 3rd year:			
Less: Initial Investment Cost = 300				= 55 + 155 + 55 = 265 Less:Initial Investment cost = 300 Net cashposition = (-) 35 Comment: Project is loss making			
NPV = 28.4							
Comment: Project is profitable							

The example presented in the table above shows that in financial management capital costs are charged on the basis of the size of inflow. In accountancy capital costs are counted on the basis of account balance of loan account, which is consistent with the legal framework of the industrial world. If the firm is an all equity firm, interest account ceases to exist; regardless of time value of money, accumulated fund position at the end of third year tends to be comfortable, standing at $100, [i.e., 100+200+100 – 300].

The story contained in the table above is meant to show that legally feasible relationship between capital structure and capital budgeting in the industrial world is diametrically opposite to what is logically structured in finance theory. Therefore, the firms, instead of getting led by pure theory, should be duly careful about legally permissible practice of the industrial world. This will save them from hidden financial risks, hitherto not properly identified and analysed.

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Corporate Governance Compliance: A Critical Study of Selected Listed Companies

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Abstract:

Corruption is a corrosive drain on public trust and on the legitimacy of Public and Private sectors. One of the key ways of addressing corruption problem through internal measures is to establish strong Corporate Governance within companies. Corporate Governance norms in India have been strengthened over the years. A good Corporate Governance Model ensures fairness, courtesy and dignity in all transactions within and outside the company. The aim of good Corporate Governance is to ensure commitment of the Board to manage company in a transparent manner to maximize long-term value of the company for its shareholders and stakeholders. This paper studies the Corporate Governance Compliance and lays parameters on the basis of performance of Indian Listed Companies. It also gives analytical views of Corporate Governance Compliance of highly governed sample companies.

Key Words:

Corporate Governance, Corruption, Corporate Governance Compliance, Companies Act, 2013

Introduction

Corruption is a corrosive drain on public trust and on the legitimacy of Public and Private sectors. Its toll can be devastating to Nation's economy- particularly at a time when open global markets can rapidly reverse investment and capital flows if confidence and trust are compromised by revelations of systemic corruption. Corruption affects all types and sizes of business firms from global conglomerates to small and medium-sized enterprises (SMEs) and co-operatives each with varying degrees of resources and capabilities to deal with the consequences.

Corporate Governance: Need of the current situation

Corporate Governance is a mission intended to create strong base in Indian Listed Companies. The scandals associated with corporate frauds served as a catalyst for Indian Government to accelerate the Corporate Governance, its disclosure, accountability and enforcement of mechanisms since 2009. There are many companies which have made proactive initiatives to introduce good governance norms and standards, even before these became mandatory. In order to reduce the corruption level, Government of India in recent

time took the extreme step of demonetization of Rs.1000 and Rs.500 notes hoping thereby to block the black money in circulation. The demonetization coverage of 1946 and 1978 had much limited coverage as compared to 2016. Demonetization is a good instrument to deal with cash hoarding. However, the execution was felt to be premature and inadequate. In a span of nearly 75 days it gave pain to nearly 1.2 billion people without any associated assurance that the objective of Demonetisation to curb corruption and Black money was met or not. One of the key way of addressing corruption problem through internal measures is to establish strong Corporate Governance within companies.

While Corporate Governance norms in India have been strengthened over the years, weak enforcement of these norms has remained a major issue, which has prompted the authorities to search for alternatives. A good Corporate Governance Model ensures fairness, courtesy and dignity in all transactions within and outside the company. The aim of good Corporate Governance is to ensure commitment of the Board to manage company in a transparent manner to maximize long-term value of the company for its shareholders and stakeholders. This paper studies the Corporate Governance Compliance and lays parameters on the basis of performance of Indian Listed Companies. It also gives analytical views of Corporate Governance Compliance of highly governed sample companies.

Literature Review

Various studies have been laid down to analyze Corporate Governance and Firm Performance relationship.

a. Shafie Zabri , Kamilah Ahmad and Khaw Khai Wah (2016) used Board Size and Board Independence as Corporate Governance indicators in paper presented on 'Corporate Governance Practices and Firm Performance: Evidence from top 100 Public Listed Companies , Procedia Economics & Finance; Elsevier.

b. Jensen Michael C & Meckling William J (1976) in 'Theory of the firm: Managerial Behaviour, Agency Costs and Ownership Structure considered Separation of Ownership and Control costs, Ownership Structure and Size of Agency costs.

c. 'Corporate Governance can be narrowly defined as the relationship of a company to its shareholders or, more broadly as its relationship to the society...' (extract from article in Financial Times,1997)

d. Benjamin I. Ehikioya assigned four Corporate Governance parameters - board size, board composition, chief executive status and audit committee to examine the relationship between Corporate Governance and Firm Performance in his paper 'Corporate governance structure and firm performance in developing economies: evidence from Nigeria'

e. Reinierr Kraakman in 'The Anatomy of Corporate Law' (2004) stated that 'Balance of Power defines good Governance. Each governance system has a distinct balance of power and set of tradeoffs among 1) shareholders, 2) boards and 3) managers... Today in most jurisdictions the Balance of Power is shifted towards 'management'.

f. Bhardwaj N & Rao B in 'Corporate Governance Practices in India – A Case Study'(January 2014) investigated Corporate Governance practices of CNX Nifty 50 companies in India. Analysis of this study comprised of 47 companies for the period: 2010-2011 & 2011-2012. This article concluded that among the sample companies studied, only five companies had disclosed proper information under the disclosure aspect. Also aspects like proceeds from public/right/ preferential issue had been ignored by the sample companies. Among the sample companies studied, seven companies had not disclosed any information on Risk Assessment and minimization procedure by the Board during period under study. However, proper information was given by all the sample companies during the period of study on other disclosure aspects.

g. Ahsan Akbar assigned three Corporate Governance parameters -ownership concentration, board size and CEO/Chair duality to examine relationship between

Corporate Governance and Firm Performance in his paper 'Corporate Governance and Firm Performance: Evidence from Textile Sector of Pakistan'.

h. Christian Strenger (GCGF-Private Sector Opinion), Corporate Governance principles cover the following areas:

- ♦ Transparency standards
- ♦ Convincing independence and quality of Boards and Auditors
- ♦ Equitable treatment of shareholders

Objective of the Study

- ♦ To study the Regulations applicable to Listed Companies w.r.t Corporate Governance Compliance.
- ♦ To analyze key parameters reflecting Corporate Governance Compliance in Listed Companies.
- ♦ To critically evaluate trends in Corporate Governance Compliance of sample Listed Companies.

Scope of Study

- ♦ The study is restricted to Corporate Governance Compliance for selected Indian Listed Companies.
- ♦ The study covered a period from 2010- 2011 to 2014-2015 i.e., period of five financial years.

Research Plan for Data Collection

Data is collected from published sources like Reports, Journals, books, websites and newspapers for the purpose of this study.

Methodology

A. Legal Regulations on Corporate Governance in India

Apart from Companies Act 2013, Regulatory Institutions like SEBI, RBI and MCA also assist in strengthening Corporate Governance framework in India.

Recent amendments in Companies Bill 2014 to strengthen Corporate Governance regulations:

Companies (Amendment) Bill, 2014 was brought into effect to safeguard the interests of the investors and reduce the barriers to do business in India. The amendment issues cover the following areas:

- ● Maintain confidentiality board resolutions by restricting public scrutiny for the same.
- ● Confidentiality of report suspected frauds at the companies audited by auditors.
- ● Relaxation of regulations for related party transactions, or those transactions.

The study is based on Corporate Governance parameters under mandatory and non mandatory regulations as prescribed under Companies Act 2013 and Clause 49 of the listing Agreement as applicable to the financial year in 2014-2015.

B. Analysis of Secondary Data

a. Sample for the study constitutes of companies Listed at NSE, a part of Nifty fifty companies. The following documents of the company are relied upon for evaluating the Corporate Governance compliance of the Companies:

- ● Notice of Annual General Meeting
- ● Directors Report
- ● Auditors Report
- ● Directors Report on Corporate Governance
- ● Website of the respective companies
- ● Applicable regulations w.r.t Corporate Governance etc.

b. An attempt has been made to critically evaluate Trends in Corporate Governance compliance by choosing five sample companies from different sectors from 2010-2011 to 2014-2015.

c. Five best governed companies were selected in a manner that they represent separate sectors for the study. The main reason to select these companies is that their scripts dominate among sectors thereby influencing stock movement of the country.

Table 1: Indian Companies listed under NSE NIFTY

	Name of the Company	Sector
1	INDIAN OIL	Refineries
2	ONGC LTD	Oil Drilling / Allied Services
3	CMC LTD	Computers – Hardware
4	HCL TECHNOLOGIES LTD	Computers - Software – Large
5	POWER GRID	Power Generation And Supply

d. The study covers Mandatory and Non Mandatory regulations of Corporate Governance parameters as prescribed under Companies Act 2013 and Clause 49 of the Listing Agreement as applicable to the financial year in 2014-2015.

Findings

All the sample companies published Corporate Governance report (a part of Annual report) as required by Clause 49 of the Listing Agreement and Companies Act 2013.

Examination of sample companies was done with respect to following:

1	Company's Philosophy on Corporate Governance
2	Composition of Board of Directors
3	Independence of Directors
4	Board participation in meetings
5	Details of Board Meeting
6	Peer evaluation of Board Members
7	Woman Director on Board
8	Training of Board Members
9	Presence of Remuneration/Compensation committee
10	Independence of Audit Committee
11	Peer review of Audit committee
12	Audit meetings frequency
13	Investor Grievance committee
14	CSR committee
15	Details of General Meeting
16	Materially significant Related party
17	Whistle blower policy
18	Practices with Clause 49 (Mandatory)
19	Risk management policy
20	CEO/CFO certification
21	Details of complaints received & redressed
22	Publication of financial results in Newspapers
23	Details of News release through Website
24	Share price movement on Stock exchange
25	Disclosure of Share holding pattern

For the purpose of Analysis, the above twenty five heads are further classified into :

- Company's Policy
- Board Matters
- Audit related matters
- Investor Relations
- Disclosure and Communication

i. Company policy:

All five companies had given a brief account on the respective company's philosophy on code of Corporate Governance. According to Corporate Governance policies, all sample companies believe that good Corporate Governance Compliance ensure ethical and efficient conduct of the affairs of the Company.

ii. Board Matters:

Directors details with respect to Composition of Board, independence of directors, board participation in meetings, Peer evaluation of Board members, Women Directors on the board, Training of Board Members, Remuneration / Compensation committee etc is covered in this research.

Secondary Data reveals the following with reference to Directors:

- The list of Companies being large, have diverse boards with different experience and directorships. All sample companies gave a detailed classification of their members, qualifications, strength, tenure, area of experience, retirement, appointment. etc.

- Two Sample companies did not have independent Directors to the extent of 50% of the board. One of the sample companies had many part time directors whereas another sample reflected independent Directors to the extent of 50% of the board for earlier years and non independent directors in the latter years.

- Among the sample companies it was observed that average mean of Directors Attendance for a board meeting during the financial year was beyond 80%. This reflected strong board participation for various operational and financial matters of the company.

- All the sample companies presented details of Board meetings with regards to schedules of the meetings held, agendas put forward during meetings, Board strength and number of directors present.

- Two Sample companies among the list had Peer evaluation of its board members. This parameter was given a lot of importance under Companies Act 2013. It provides motivation and initiation of members of the board and removal of uninterested and inefficient director.

- CMC ltd already had Woman director on the board during the period of survey. However, among the sample companies, two companies did not appoint any Woman director during the period of study. Other sample companies appointed Woman directors over a period of time to adhere to requirements under Companies Act 2013.

- Among the sample companies, it was observed that all the five companies had provided training to its directors and disclosed the details of training and its expense in the annual reports during the period of study (2010-2011 to 2014-2015).

- Among the sample companies, it was observed that all the five companies had remuneration/ compensation committee and that director's remuneration during the years were disclosed in the annual reports. Annual reports disclosed transactions of the non-executive directors with Company, remuneration policy, terms of appointment of the directors in the board, pay revision, directors sitting fees during the period of study (2010-2011 to 2014-2015).

iii. Audit related matters:

- It was observed that all the sample companies comply with Section 177 of the Companies Act, 2013 and Rule 6 and 7 of Companies (Meetings of Board and its Powers) Rules, 2014 related to Audit committee. Considering the literature review, the companies were also analyzed on the basis of independent audit committee, frequency of meetings conducted and peer evaluation of its members.

- According to the sample, Engineers India, HCL technologies and Indian Oil had 100% independent

directors in Audit committee. CMC ltd. didn't maintain 100% independent directors in its committee.

- None of the members had peer review of its audit committee members.

- All the companies conducted Audit committee meetings frequently and disclosed its details in Annual report. Also committee participation was observed to the extent of 100 % in all these companies during the period of study from 2010- 2011 to 2014 -2015.

iv. Investor Relations:

It was observed that all the sample companies had complied in maintaining good investor relations over the period of study. All sample companies had formed investor grievance committee, gave details of General meeting and disclosed materially significant transactions in its Annual report. However it was observed that HCL ltd had formed CSR committee only since 2014-2015.

v. Disclosure and Communication:

It was observed that all sample companies had maintained transparency by giving information about its Whistle blower policy, CEO/CFO certification, Details of complaints received & redressed, Publication of financial results in Newspapers, Details of News release through Website, Share price movement on Stock exchange and Disclosure of Share holding pattern.

During the period of study, Except CMC ltd has complied with Mandatory clauses under Clause 49 of the listing agreement including Independent directors to be minimum 50% of the board composition and Constitution of additional mandatory committees. Indian oil and ONGC being Government companies did not fulfill the provision for compliance of Board composition regarding Independent Directors. However it has been observed that apart from mandatory provisions, all six sample companies have complied with many non-mandatory requirements of Clause 49 of the Listing Agreement. It is observed that ONGC has not maintained any Risk Management policy till date.

Limitations

- The study focuses only on Corporate Governance compliance with the help of Study of Five Listed Companies for past five years (2010-2011 to 2014-2015).

- Inspite of the above limitations, efforts were made to ensure that research findings are interpreted in a manner that makes them valid & reliable.

Conclusion & Suggestions

Though Corporate Governance practice has its roots since ancient times, yet it is continuously evolving and requires continuous amendments to adapt to the external threats. Since the listed companies constitute the major pool of capitalization and capital markets-important segment of the economy in India; introduction to the discipline of Corporate Governance in listed companies has been initiated in line with the US model. Corporate Governance compliance reflects an increasing trend over the years among these companies. This reflects that there has been a need to increase Corporate Governance compliance to increase transparency and disclosures. No amount of legislation can impose these practices among the companies, unless there is an attitudinal change on the part of the management of the corporate. Process of achievement of excellence in governance should come in a spirit and cannot be enforced upon any corporate by regulators by prescribing certain rules and regulations.

After reviewing the findings, It is suggested that

- Since there are many regulators in support of Corporate Governance application, one of the initial difficulties is to harmonize these decision-making centers.

- Provisions of Corporate Governance should be streamlined under the Companies Act and the SEBI so that unscrupulous companies do not take advantage of slipping between the conflicting mandates of two regulators.

- Government should promote professionalism and independent functioning of the Board of Directors in companies.

- Review of the Corporate Governance reports should be done by committee of experts with reference to utility, cost and contents of the details disclosed by each industry. Comprehensive report should be prepared by them to reduce box-ticking exercise and enhance the quality of the governance.

- The regulators are expected to be more vigilant to prevent any predatory practices in companies.

- Risk-taking is a fundamental driving force for any company. The cost of risk management failures is still often underestimated, both externally and internally, including the cost in terms of management time needed to rectify the situation. Corporate governance should therefore ensure that risks are understood, managed, and, when appropriate, communicated.

- Rather than mere compliance, the Companies should focus on internal ethical codes to increase transparency, accountability, fairness and independence thereby increasing Corporate Governance.

To conclude, Corporate Governance structure lists the distribution of rights and responsibilities among Board, Managers, shareholders and other stakeholders. This structure reflects rules and procedures for making decisions on corporate affairs. It provides the structure through which company objectives are set, and also provides the means of attaining those objectives and monitoring performance. At Global level, companies are focusing on high standards of Corporate Governance as a matter of business strategy rather than Compliance.

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Efficient Market Hypothesis: A Study on Indian Capital Market

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Abstract :

An important question among stock market investors worldwide is whether the market is efficient enough. Market efficiency bears far more deeper implications than most investor's imagine; about the ability of investor's to outperform the market. Efficiency of stock market implies whether it reflects all information available to the market participants at any given point of time. The Efficient Market Hypothesis (EMH) maintains that all stocks are perfectly priced or valued according to their inherent investment attributes, the knowledge of which all market participants possess equally (Fama, 1988). The paper tested the EMH in context of Indian stock market in the post liberalization era (1991-2013) through a series of tests. During this period several measures were initiated by the GoI to liberalize the functioning of the stock market and bring in more transparency. However, the outcomes of the research suggest that despite substantial progress in this regard the Indian stock market, in terms of EMH still remains weak. Therefore, there remains a distinct possibility by investor's in Indian stock markets to generate super-normal returns.

Key Words:

Stock Market, Market Efficiency, Valuation, Event Studies, Insider Trading

Introduction

An important debate among stock market investors is if the market is efficient, whether it reflects all the information available in the market at any given point of time. The Efficient Market Hypothesis (EMH) as propounded by Fama (1988) deals with how information is incorporated in the stock prices and considers the speed of impounding of information into it. EMH has been classified into three categories, namely, weak, semi-strong and strong, each dealing with different type of information.

The weak form of efficiency tests whether all past information are reflected in current prices. Semi-strong form of efficiency tests whether all publicly available information are fully reflected in current stock prices. Finally, the strong form of efficient market hypothesis tests whether all information, public and private is fully reflected in stock prices. The EMH has strong implications for security analysis. If, for example, empirical tests find that future returns cannot be predicted from past returns, then trading rules based on an examination of the sequence of past prices are futile. If the semi strong form of hypothesis is supported by empirical evidence, then trading rules based on publicly available information has no value. Finally, if the strong form tests show efficiency then the value of the security analysis itself would be a suspect. Thus, an understanding of EMH tests is very crucial from an investor's point of view.

The stock market of India has gone through a series

of revolutionary changes since economic liberalization commenced in 1991. The changes were necessary to transform Indian stock market into a more efficient one. Earlier, the stock market of a developing country like India was characterized by extensive governmental regulation over its financial system and investment activities. However, Indian stock market has witnessed a number of changes as well as unprecedented growth since 1991. Several measures have been initiated by the Government to strengthen the operations of the stock market. Therefore, it is very important to explore the relevancy of Efficient Market Hypothesis in context of the Indian stock market in the post liberalization era. This research carried out tests of efficiency (weak, semi –strong and strong) in context of the Indian stock market to measure the degree of its strength and maturity.

Literature Review

The EMH has been classified in extant literature into three distinct forms: a) Weak, b) Semi-strong, and b) Strong form. This classification was originally proposed by Fama (1988). Strong form is suggestive of the fact that the market, at any point of time, fully reflects all information (public or private) in stock prices. Note that, market efficiency does not imply that the market value of a stock is always to likely mimic its intrinsic value. An efficient market is one in which the market value is an unbiased and independent estimate of its intrinsic value. Therefore, investor's possibility of generating excess returns consistently is almost ruled out. In support of this proposition it was observed that fund managers under-perform a combination of passive indices combined to have the same risk after management fees and expenses are taken into account (Elton, et. al., 1990). This could also probably be due to the reluctance of fund managers to take exposure in small-cap stocks which in evidently have excess returns when measured relative to the CAPM or even justify their fees and the expenses they incur.

However, even in the US which symbolizes the epitome of strong form, excess returns have been identified over varying time periods. Though existing research has failed to explain this inconsistency, the source of excess returns is probably due to 'superior' use of publicly available information rather than monopoly access or even insider trading. This again supports our earlier conjecture, the mere availability of data does not makes a market perfect, its interpretation does. In support, past studies by Jaffe (1974) and Lorie and Niederhoffer (1968) found patterns of excess returns which could be due to trading based on privileged information, unless these traders happened to possess superior analytical skills, both of which seems equally likely. This is particularly true, given the increasing trend of Wall Street deploying the services of 'rocket scientists' and using high end analytics and optimization tools (including models based on AI) to manage their risks (for a detailed reading see www.msci.com). On the overall, research indications are that US stock market scores high on informational efficiency, however, the presence of market rationality across all investor segments cannot be necessarily presumed.

Market volatility tests by LeRoy and Porter (1981) and Shiller (1981, 1984) also confirms the above proposition. Volatility tests examine volatility of stock prices relative to the volatility of its intrinsic value. Markets are said to be inefficient if market value of stocks in general display volatility which defies its fundamentals. An analysis of forecasts by a large number of independent advisory services revealed that a change in classification either upward or downward generated excess returns, which was also found to be sustainable and not a mere correction. Acting on changes in classification produced larger excess returns than acting on the recommendation themselves. In addition, no superior forecasters could be identified. Investor's were better off following the advice of the average or consensus forecasts rather than follow the advice of set of forecasts based on their past track record. Further, Stickel (1985) found that the market displayed more volatility than the fundamentals on which advisory services were based. This substantiates our earlier point regarding the evidence of analysts having information not fully incorporated in stock prices or a confirmation of market rationality. These studies assume importance, because this is the most basic form through which the financial community at large receives information. Therefore valuation and its subsequent refinements make sense even in efficient markets like the US to generate excess returns, even if not on a consistent basis.

In addition to information efficiency, Fama (1970) considers the semi-strong form with the speed at which information

is discounted in stock prices. This refers to event studies or studies of announcements and its subsequent impounding in stock prices. A potential lag between an announcement and its impact is an impediment to market efficiency and creates a potential opportunity to trade in stocks and generate excess returns. The semi-strong form does not deny the presence of value based information, nor does it deny the impact it creates on stock prices. It supports the view that excess returns are possible by taking advantages in the inefficiencies in the discounting process. If returns are not predictable from past returns, then new information is incorporated in stock prices sufficiently fast that, by the time an investor could tell from the price movements themselves that there had been a fundamental change; the fundamental change is already reflected in the price. However, since the efficient form argues that return forecasts are indeed possible from past returns, therefore there is a potential delay in fundamental changes being reflected in price changes. Results from a wide range of 'event studies' affirms that markets are by and large efficient with regards to routine announcements like dividends, rights, stock splits, etc. (Krauss and Stoll, 1972; Grier and Albin, 1973; Dodd and Ruback, 1977). However, there exists significant information asymmetry with regards to strategic announcements like M&A or otherwise, which takes significantly longer time duration for its obvious analysis and impact (Firth, 1975). Davies and Canes (1978) also supports this view and points towards the definite presence of such inefficiencies in the Asian markets, if not in the US as well.

Under the classification of anomalies or patterns (high or lows) in returns being identified from past data, Fama (1988) identified excess returns in January and on Mondays in US. On the lines of these tests the authors own research on the Indian markets spanning (1991-2013) clearly indicates significant excess returns in November. November is historically the month in which Diwali is celebrated (marking the start of the Indian financial year across a vast section of the Indians, and stock broking community in particular). It is at this point of time investors square-off their past transactions and strike new deals and take fresh positions, traditionally thought to be auspicious. This pushes up the volumes and results in the distinctively excess returns. It requires little market rationality that these events spark of buying behavior and has the distinct potential to generate excess returns; no wonder the logic also undermines the deep linkage between business and religion in India. The above studies indicate the strong possibility of valuation studies being used in slightly weaker markets like Asia to generate excess returns. However, it needs to be mentioned that models developed in the Western context cannot be applied in its exact form without sufficient customization. As models developed in one context may not work in other contexts because of methodological and behavioral issues as explained earlier.

The weak form tests whether all information at all gets fully discounted in stock prices over a reasonable period of time. According to extant research, most Asian markets (including India) score low on informational efficiency as well as market asymmetry. Barua and Raghunathan (1987) tested the market efficiency in India based on actual returns. Their results indicate that the Indian capital market is inefficient in pricing its stocks. Obaidullah (1991) noted that daily returns as well as Sensex (a market proxy) returns differed significantly from normality whereas monthly Sensex returns were not significantly different from a normal distribution. The monthly returns were positively skewed and leptokurtic but not statistically significant. Barua and Raghunathan (1990) in a small sample study concluded that on an average shares are over-valued in the Bombay Stock Exchange (BSE), the oldest stock exchange in India. The indication of a one-sided skewness is another dimension of low efficiency. However, the findings in the Indian context are not free from dichotomies either. Barua (1981) in his paper using runs-tests and serial correlation tests found preliminary evidence suggestive towards market efficiency in India. However, the general consensus is that Indian markets score low on efficiency with regards to developed country contexts.

It should be mentioned here that Roll (1994) pointed out that efficiency and 'randomness' displays one-way causality. Efficient markets are expected to display randomness; but randomness per se may not be due to efficiency. This is a critical insight for future research. We conjecture Indian stock markets display randomness due to reasons different from developed country contexts. The presence of a high degree of 'soft' infrastructural bottlenecks prevents the free flow of information in the economy. Low internet penetration and slow band-width in India is a clear indication in this regard. Further,

low financial literacy (a factor which acts as an impediment to efficiency) is also clearly wide spread. The continued presence of 'ponzi' schemes despite over two decades of liberalization is another pointer in this regard. Liquidity is possibly another serious problem faced by Indian investors; a consultative paper by SEBI indicated a poor liquidity situation at the stock exchanges in India. The Pareto's 80:20 rule aptly applies here as well; 80% of the liquidity finds way 20% of the stocks. Insider trading and lack of transparency also persists. Adequate liberalization and globalization has taken place, but the market is still driven by FII investments. Hot money basically flows into avenues for purposes beyond risk and return, also justifies our view point. With the presence of multifarious inefficiencies in the Indian context it might quite be possible that any amount of customization of valuation models may still reveal inconsistent and insignificant results.

Research Design & Methodology

Most tests of the EMH simply deal with how fast information is incorporated but don't deal with whether it is correctly incorporated in prices. The EMH has been categorized into three forms, each dealing with a different type of information. Weak form tests are tests of whether all information contained in historical prices is fully reflected in current prices. Semi-strong form test of the EMH tests whether publicly available information is fully reflected in current stock prices, and finally strong-form tests whether all information public or private fully reflected in security prices and whether any type of investors can make an excess profit.

Fama expanded the definition of the first type of efficiency. He changed the classification weak form tests to the more general category as 'tests of return predictability'. Consistent with this new classification, Fama (1988) has changed 'semi-strong form' of efficiency to event studies or studies of announcement and we will also adopt classification. Tests of the predictability of returns (formerly tests of the weak form of efficient market hypothesis) are in part tests of whether this type of trading behavior can lead to excess profit. The strong form of the efficient market hypothesis states that there are no investors with this superior ability. Since it is impossible to determine exactly how investors might utilize the announcement to reassess the value of the firm, tests of the strong form of the efficient market hypothesis are examinations of whether an investor or group of investors have earned excess returns. The time for the study spans from 1991-2013.

Analysis & Discussion

a) Test of strong form of efficiency

Some investors, who own a considerable portion of the outstanding shares or are at a significantly high management level, are considered insiders. If insides trade on privileged information, then one would expect to see insiders purchase in month before security prices increases and sell in month before the security price declines. In other words, insiders take the advantage of some events or news which is only available to them. Hence a volume jerks will be observed on the date when the insiders act on these events or news. Therefore, the insiders are able to earn excess return than expected return, and this return must be due to exploitation of insider information.

The day 0 (zero) is considered as the date on which there is a substantial increase/decrease in trading volume of shares. This test shows if the insiders can earn excess return. Under this test, 10 sample firms have been selected from various industries during the period 1991-2013. The companies selected were from 10 different industries included in the group of BSE Sensex of 30 shares during the period of study. These constituents of the BSE 30 stocks are selected after screening more than 5000+ companies listed in the BSE based on market capitalization, revenue generations, trading activity and traded value. Therefore, the sample can be considered to be reasonably robust and a close proxy of the Indian stock market.

No	Company	Sector	Purchase/Sale	Date of Announcement
1	ACC	Cement	Buy 10,16,621 shares @ 889.73 by Ambuja Cement	08 May 2007
-	-	-	Buy 61,42,621 shares @ 898.30 by Ambuja Cement	08 May 2007
2	Axis Bank	Banking	Sell 1,96,09,210 shares @958.43 by HSBC IRIS Investments Mauritius Ltd	28 June 2012
3	TISCO	Steel	Buy 30,25,000 shares @ 509.85 by Morgan Stanly Dean Writter Mauritius Co.Ltd.	13 April 2007
4	Bajaj Auto	Auto	Buy 10,47,500 shares @ 1722.76 by Bajaj Autoand Investment Ltd.	24 February 2010
5	HDFC	Housing Finance	Buy 25,69,000 shares @ 1158.63 by Capital Group Ac	06 March 2009
-	-	-	Buy 22,66,000 shares @1160.48 by Capital Group Ac	06 March 2009
6	TCS	IT	Sell 1,03,21,324 shares @ 615.04 by Tata Limited	06 May 2009
7	Reliance Industries	Petroleum	Buy 76,33,333 shares @ 857.95 by Bhumika Trading Pvt.Ltd.	21 December 2005
-	-	-	Buy1,02,94,960 shares @ 855.95 by Ekalavya Mercantile Pvt.Ltd.	21 December 2005
-	-	-	Sell 77,78,380 shares @ 855.77 by Fidelity Shares and Securities Ltd.	21 December 2005
-	-	-	Buy 1,04,85,524 shares @ 855.30 by Bhumika Trading Pvt.Ltd.	21 December 2005
-	-	-	Buy 1,05,71,970 shars @ 858.38 by Enaksha Enterprise Pvt.Ltd.	21 December 2005
8	DrReddy's Laboratory	Pharma	Buy 15,47,170 shares @ 1479.21 by The Bank of New York Mellon Representative Office	15 July 2010
9	Godrej	FMCG	Sell 12,63,000 shares @160.44 by First Source Investments	15 September 2006
10	Hindalco	Aluminium	Buy 8865000 sharesat Rs 57.99 by Retail EmployeesS uperannuation Trust	31 October 2008

✿ For each firm a particular date has been identified on which there was a substantial increase/decrease in trading volume (buy or sell) of shares which is considered as day 0 (zero)

- ✿ Period of study selected as date of the date +/- 30 days (event period)
- ✿ Return of each day for all stocks are calculated
- ✿ Now, abnormal return is calculated as Stock return over Index return (BSE 100)
- ✿ Individual day's abnormal return is added to compute the Cumulative Abnormal Return (CAR)
- ✿ Average CAR is computed for all the sample firms

The pattern of CAR diagram signifies that the insiders are not able to take advantage of privileged information and exploit the situation which supports the strong form of market efficiency is given in the table below:

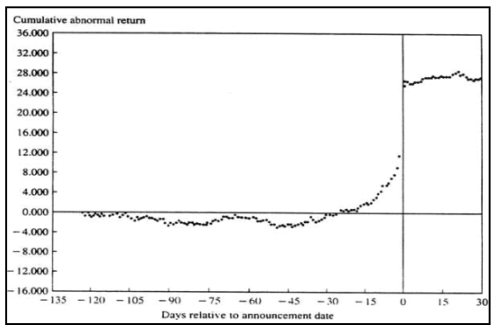


Fig -1

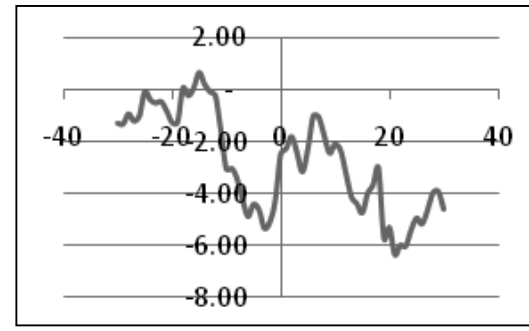


Fig - 2

Fig – 1: The pattern of CAR obtained in case of an efficient market (strong form)

Fig – 2: The pattern of CAR obtained in the study

The above study conducted on the movement of share prices of 10 selected firms around day 0 and CAR calculated and plotted. The graph failed to generate a pattern, which negates that the Indian capital market satisfy strong form of efficiency. Hence, we proceed to test for the semi-strong form.

b) Test of semi-strong form of efficiency

Under this test, 10 sample firms (included in the strong form test) have been selected from various industries during the period 1991-2013.

No	Company	Sector	Event	Date of Announcement
1	ACC	Cement	Bonus @ 3:5	02 April1 996
2	ITC	FMCG	Dividend @ 1000%	09 June 2010
3	TISCO	Steel	Bonus 1:2	07 June 2004
4	Bajaj Auto	Auto	Bonus 1:1	22 July 2010
5	HDFC	HousingFinance	Bonus@1:1	17October2002

No	Company	Sector	Event	Date of Announcement
6	TCS	IT	Bonus @ 1:1	13 September 1997
7	RelianceI ndustries	Petroleum	Bonus @ 1:1	13 September 1997
8	D rReddy's Laboratory	Pharma	Split : FV Rs 10 to 5	31 July 2001
9	Godrej	FMCG	Split : FV Rs 10 to 4	26 April 2006
10	Hindalco	Aluminium	Split : FV Rs 10 to 1	12 July 2005

For each firm a particular date has been identified on which there was an surprise announcement (bonus, split of shares or substantial increase in the dividend payout) which is considered as day 0 (zero)

Period of study selected as date of surprise announcement date +/- 30 days (event period)

Return of each day for all stocks are calculated

Now, abnormal return is calculated as Stock return over Index return (BSE 100)

Individual day's abnormal return is added to compute the Cumulative Abnormal Return (CAR)

Average CAR is computed for all the sample firms

The pattern CAR diagram theoretically in a semi-strong form of market efficiency is given below:

Fig – 3: The pattern of CAR obtained in case of an efficient market (semi-strong form)

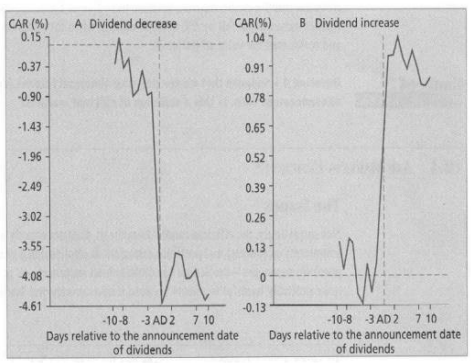
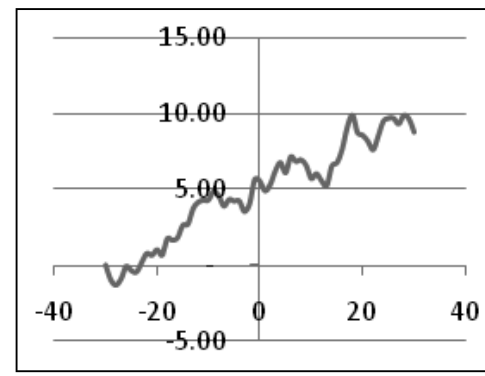


Fig – 4: The pattern of CAR obtained in the study



To satisfy the condition for semi-strong form of efficiency, abnormal return can be observed on the date of announcement but not other days. In our experiment, abnormal positive returns were observed on the days from -30 till +30. This clearly shows that the Indian stock market fails to satisfy the test of semi-strong form of efficiency and indicates the existence of

insider trading or the information not discounted properly in the market. In the absence of any support either for strong or semi-strong forms of efficiency, we test the lowest level of efficiency i.e. the weak form.

c) Test of weak form

Time pattern of security returns: A number of studies have reported time pattern in security returns. Returns are systematically higher or lower depending on the time of the day, the day of the weak, and the month of the year. It is hard to know what conclusions should be drawn from these patterns referencing extant literature. One explanation is that with hundreds of researchers examining the same data set, patterns will be found, and that these patterns are simply random. If this is true, then evidence from other markets and other time periods should not find similar patterns. A second plausible explanation is that these patterns are formed by the market structure and demand and supply of stocks traded in the market. Third possible answer is that markets are inefficient because one would expect that the pattern would disappear as investors try to exploit them. Until they are fully understood, the best advice is that in most cases because of transaction costs to return differences are not large enough to develop a meaningful trading strategy to take advantage of them. If one is trading anyway, however, one might time the trade to try to exploit the pattern. A study conducted by the author revealed the following:

- ✿ Average monthly return of BSE Sensex and NSE Nifty calculated (Jan1991-Dec 2013)
- ✿ The lowest monthly return found in March
- ✿ The reason could be year-end effect and book closure for most of the firms
- ✿ The highest monthly return is observed in July
- ✿ The reason could be the declaration of yearly results by most of the firms and the effect of monsoon
- ✿ The second highest return generated in the month of November, this could be the Diwali effect, i.e. the Samvat (new accounting year) of the broking community
- ✿ The percentage returns of BSE - 100 and NSE – Nifty obtained from the study are given below:

Month	BSE	NSE
Jan	0.1100	0.1950
Feb	-0.0180	0.3975
Mar	-0.0765	-0.1565
Apr	0.5156	0.3378
May	0.3378	0.2634
Jun	0.3100	0.3186
Jul	0.9100	0.7880
Aug	0.5140	0.4129
Sep	0.4000	0.4200
Oct	0.4100	0.2995
Nov	0.7600	0.6400
Dec	0.2800	0.2100

- ✿ The graphical representation of the above data is as follows:

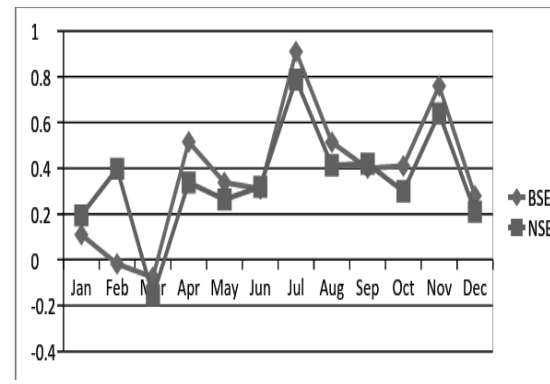


Fig-5

The above results indicate that it is possible to earn above normal returns by selling prior to March and buying before July or November irrespective of the market condition. This contradicts the weak form of efficiency which states the movement of the market is random and should not follow

any pattern. In an efficient market, we should not expect a seasonal pattern or for that matter of fact, any pattern. Therefore, even weak form of efficiency stands negated.

Correlation tests: T is calculated as the return (%) of current years return based on BSE 100 index. T-1 is the previous year's return and so as T-2 and T-3 represented as return for previous second and third year's return. Conducting a study of BSE 100 index for the period of 1991 – 2013, the following results were obtained:

Year	T	T-1	T-2	T-3
1994	11.23	35.08	30.87	70.42
1995	-23.48	11.23	35.08	30.87
1996	-4.77	-23.48	11.23	35.08
1997	16.04	-4.77	-23.48	11.23
1998	-14.31	16.04	-4.77	-23.48
1999	92.59	-14.31	16.04	-4.77
2000	-25.68	92.59	-14.31	16.04
2001	-23.75	-25.68	92.59	-14.31
2002	6.89	-23.75	-25.68	92.59
2003	84.34	6.89	-23.75	-25.68
2004	15.88	84.34	6.89	-23.75
2005	37.84	15.88	84.34	6.89
2006	40.65	37.84	15.88	84.34
2007	59.35	40.65	37.84	15.88
2008	-55.41	59.35	40.65	37.84
2009	83.80	-55.41	59.35	40.65
2010	15.87	83.80	-55.41	59.35
2011	-26.07	15.87	83.80	-55.41
2012	29.45	-26.07	15.87	83.80
2013	5.47	29.45	-26.07	15.87

- **T = 28.659 – 0.049 (T-3) – 0.232(T-2) – 0.399 (T-1)**
- R Squared (T-3) = 0.159201
- F Value is 0.938
- The null hypothesis is:

Ho: There is a significant relationship exists between current year's return on BSE 100 index (T) (dependent variable) and the previous three year's return i.e. T-1, T-2 and T-3 (independent variables)

Observations: The result shows a positive constant term and negative coefficients for all the three dependent variables with a very low R square value. The critical value of F at (3, 16) degrees of freedom is 3.24 at 5% level of significance. Since the calculated value of F is less than the critical value we accept the null hypothesis and conclude that a significant relationship exists between current year's return on BSE 100 index (T) (dependent variable) and the previous three year's return i.e. T-1, T-2 and T-3 (independent variables).Therefore, Indian stock market fails the test of weak form of efficiency during the period 1991-2013.

Conclusion

The Indian stock market has witnessed multi-fold reforms since 1991. The opening up the market for FIIs, foreign and private mutual funds, introduction of derivatives and electronic trading, replacement of archaic CCI with SEBI etc, have all played a significant role in boosting the stock market volumes and efficiency in large. However, as far as our tests of market efficiency are concerned, Indian stock market can be considered far from being efficient by any developed country standard despite substantial steps have been taken for the economic liberalization. However, it should also be pointed out that it is practically very difficult to attain perfect efficiency for any market, but it is possible for a market to operate with greater efficiency by complying with the following conditions:

- Universal access to high-speed data and advanced pricing analysis models
- A universally accepted analysis system of pricing stocks
- Avoidance of human emotions in investment decision making
- The willingness of all investors to accept that their returns or losses will be exactly identical to other market participants
- A high degree of financial literacy
- Avoidance of dual taxation

However, it is hard to imagine, even some of these criterion of market efficiency being met even in the developed country contexts.

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Financial Soundness of State Bank of India (SBI) and HDFC Bank during 2008-09 to 2015-16: An Empirical Analysis

Goutam Bhowmik

Abstract:

Financial soundness of banking system is a sine qua non for vibrant economy. The sounder the banking system; the more is the capacity of the economy to accommodate endogenous and exogenous shocks. In simple term, soundness implies absence of financial instability. On this backdrop, the present study aims at comparing the soundness of the top two commercial banks in terms of market capitalization as on 31st March 2016 – one in the public sector (State Bank of India or SBI) and the other in the private sector (HDFC Bank) – during the period 2008-09 to 2015-16 in order to verify whether these two banks are significantly different in statistical term so far as soundness is concerned.

Key Words:

Financial Soundness, Capital Adequacy Ratio (CRAR), Non-Performing Assets (NPAs), Provision Coverage Ratio (PCR), Liquidity Management

1. Introduction

The role of banks as provider of finance to the trade and industry is very important because finance acts as the backbone of the economic activity. Like many developing countries in the world, commercial banking sector has been the dominant element in the Indian financial system and has performed the key functions of providing liquidity and payment services to the real sector and has accounted for the bulk of the financial intermediation process. Since, banking sector constitutes a major component of the financial service sector, its soundness is essential for a healthy and vibrant economy (Khatik and Nag, 2014). The efficient, productive, profitable, stable and shock free economy is possible only when a country is having a sound and healthy banking sector.

A financially sound banking system offers many benefits and gives guarantee to not only its depositors but also its shareholders, employees and to the whole economy. Over the years, it has been seen that the Indian banking system helped the real economy to survive various national and worldwide economic shocks and meltdowns. At the same time, Indian banking has witnessed significant changes especially in the last two and half decades or so. The process of liberalization enabled the entry of new private sector banks. As a result of which, the Public Sector Banks (PSBs) were forced to face the cutthroat competitions. The private banks are coming up with their attractive policies and providing the customer with better services by leveraging on technology and new ways of providing convenience to customers. This gives rise to the debate whether newly established private banks are performing better or not; more efficient or not; better managed or not and more sound or not as compared to PSBs.

Coming to the issue of financial soundness of Indian banking system, it can be safely said that soundness has had a direct bearing on the overall progress of economy because growth backed by adequate financial soundness is a sign of healthy economy. In this backdrop, a comparative study on the financial soundness of the top two commercial banks in terms of market capitalization[1] as on 31st March 2016 – one in the public sector (State Bank of India or SBI) and the other in the private sector (HDFC Bank) especially after the 'Global Financial Crisis' – may be important to assess whether these two banks are significantly different in respect of soundness. The study will be also important in view of the fact that these are the two largest players in the Indian banking space: one in the domain of Public sector and the other in the private sector and hence their soundness is vital to the soundness and stability of the Indian banking system.

2. Review of Literature and Research Gap

Several studies have been made to explore the issue of financial performance and soundness of Indian banking system especially during the post-reform era. The following studies are worth mentioning in this regard:

Bandyopadhyay (2012) studied HDFC's venture into banking and narrates its evolution from 1995 to 2012. The book covers the life of the bank right from the conception of ideas, assembling like-minded experienced talented bankers and creating a corporate culture to mergers. It provides valuable details about the efforts, struggles, and perseverance in the process of building an institution. It also highlights how important it is to be cost conscious and elaborates the advantages of building core corporate values for the success of a bank.

Govil and Tripathi (2014) examined the impact of the global financial crisis on a sample of top ten ranked banks by using trend analysis of important financial indicators. They concluded that average profitability of the top ten banks improved in the post crisis period as their credit demand grew consistently.

Arathy and Pillai (2014) made an attempt to evaluate the performance of one public sector bank (SBI) and two private sector banks (Federal bank and ICICI bank) using CAMEL approach and conduct a comparison on the basis of ranking method for the period 2010 – 2014. The analysis showed that the overall performance of ICICI bank and Federal bank is comparatively better.

Pakira (2016) compared the growth performance of SBI and HDFC Bank in terms of affiliation and association between earnings and growth performance indicators for the period from 2005-06 to 2014-15. The paper explored the Growth rate in SBI and HDFC Bank. Analysis showed that the growth performance of HDFC bank is better than SBI during the period under study.

Kartikeyen and Shangari (2014) made an analytical study on six leading private sector banks (Axis, HDFC Bank, Kotak Mahindra Bank, Indusind Bank, Yes Bank and ICICI Bank) over the period of 2009 to 2013. They studied the relative financial position and performance of each bank. Overall, analysis supports that HDFC bank is more efficient than other banks.

Kushalappa and Kunder (2013) evaluated the financial performance of top 5 public and private sector banks of India. The study clearly showed that there is significant difference among public and private sector banks with regard to the financial performance

Singh, Choudhry and Mohina (2013) identified the liquidity of selected private sector Indian banks by using CAMEL Model for a period of eleven years i.e. from 2000-01 to 2010-11 and found that there is no significant difference in the ratio of liquid assets to total assets and liquid assets to demand deposits in selected banks during the period. But Nagarajan, Ali and Sathyanarayana (2013) found that the financial performance of ICICI bank sounds better than SBI and there is a significant impact of income on profitability of SBI and ICICI banks.

Goel and Rekhi (2013) studied the relative performance of Indian banks and found that new banks are more efficient than that of the old ones and the public sector banks but Prasad (2012) diagnosed that there is no significant difference between the performance of 26 public and 13 private sector banks.

Srinivas and Saroja (2013) analyzed and compared the Financial Performance of HDFC and ICICI Bank. They concluded that there is no significance difference between the ICICI and HDFC bank's financial performance but the ICICI bank performance is slightly less compared to HDFC Bank.

Parmar (2014) studied various dimensions of NPAs among SBI and ICICI Bank over the years 2011 - 2013. It highlighted the relationship between Net Profit and Net NPA – while SBI has shown positive relationship between Net Profit and Net NPA, negative relationship has been found in case of ICICI.

Makkar (2013) made a comparative study of the financial performance of Indian commercial banks by considering a sample of 37 banks (22 public and 15 private sector banks) during the period from 2006-07 to 2010-11. The study found that the IDBI Bank was the best performing bank followed by Kotak Mahindra Bank and ICICI Bank. The result of statistical test disclosed that there is significant difference in the capital adequacy, asset quality and earning capacity of public and private sector banks in India.

Bhowmik (2014) studied the safety and soundness of Indian banking in the context of adoption of Basel III Norm. He concluded that safety and soundness has always been associated with costs. Naturally, the adoption of Basel III will going to adversely affect some crucial variables like profitability, growth and existing business model of Indian banks.

Bhowmik (2016) empirically tested the financial soundness parameters of SBI and Axis Bank during the period 2008-09 – 2015-16 and found that Axis Bank performed better in terms of Net NPA ratio, quality of earnings as measured by ROA and ROE.

Arora and Arora (2012) examined productivity growth in PSBs in India in the post-liberalization period from 1991-92 to 2008-09. Total Factor Productivity (TFP) was computed using Hicks-Moorsteen Index Number as given by O'Donnell (2010). Results showed that Indian PSBs have experienced positive productivity growth since liberalization. There also exist significant difference in the productivity growth experienced by SBIG and NBs with the latter having higher TFP growth.

Baidya and Mitra, D. (2012) evaluated the technical efficiency of 26 Indian PSBs from the cross-sectional data for the financial year 2009-10 and to provide ranking of efficiency to these banks using DEA model. The results revealed that average technical efficiency of entire sample is 86.5% and that only 23% were found to be fully efficient.

Khatik and Nag (2014) analyzed the soundness of five nationalized banks in India. The finding of the study shows that Bank of Baroda has been ranked at the top. The Union Bank of India and Dena Bank secured the 2nd position followed by SBI and UCO Bank.

Veena and Prasad (2014) studied the quality of assets by analysing the trends of assets, liabilities and provision adequacy. It compares and contrasts the asset quality and management by public and private sector banks. Several other studies such as Prasuna (2003), Bodla and Verma (2006), Ghosh (2010), Sen Gupta (2011), Chaudhary and Singh (2012) can also be cited.

Inspite of a such voluminous literature on the subject, it was found that no comparative study on the soundness of the top two commercial banks in terms of market capitalization – one in the public sector (State Bank of India or SBI having market capitalization of Rs 1,79,320.15 crore as on 31.03.2016) and the other in the private sector (HDFC Bank having market capitalization of Rs.3,14,726.71 crore as on 31.03.2016) has been made over the period of 2008-09 – 2015-16. The present paper aims to fulfill that gap by rigorously analyzing and comparing the soundness indicators of these two banks by using descriptive statistics, graphical analysis including trend analysis and hypothesis testing.

3. Concept of Financial Soundness of Bank

Financial Soundness is a difficult concept to explain because there is no widely acceptable definition of the term. Some authors explained the concept of soundness in terms of what financial soundness is not. Simply speaking, financial soundness implies absence of instability – representing a situation in which economic performance is not undermined (weak) by the price fluctuations of financial assets or because financial institutions are unable to meet contractual

obligations. Broadly speaking financial soundness implies the followings:

a) Monetary stability,

b) Confidence in financial institutions and the functioning of financial markets in the economy

c) Absence of Relative motion of asset prices (real or financial) in the economy that would undermine the above two elements

Viewed from positive perspective we can define the term 'Financial Soundness as a situation in which the financial system is capable to: (a) allocate resources efficiently between its activities over time, (2) access and manage financial risk, and (3) to absorb shocks arising from both endogenous and exogenous factors.

Table1: Financial Soundness Indicators and their Measures

Broad Soundness Indicator	Measures
Capital Adequacy	Tier I Capital to Risk Weighted Assets
	Tier I Capital to Risk Weighted Assets
	Total Regulatory Capital to Risk Weighted Assets (CRAR)
Quality of Asset Portfolio	Gross Non-Performing Assets to Gross Advances (GNPA Ratio)
	Net Non-Performing Assets to Net Advances (NNPA Ratio)
	Provision Coverage Ratio (PCR)
Liquidity	Liquid Asset to Total Asset (Liquid Ratio)
Earnings and Profitability	Return on Asset (ROA)
	Return on Equity (ROE)

From the perspective of Banking, the presence of above three elements is necessary for Financial Soundness. The first involves the formation of an individual assessment policy and procedure for efficient allocation of resources in cost effective manner. The second involves identifying the main sources of risk and vulnerability that could pose challenges for the future stability of the bank and the broad policy measures to manage those challenges. The third and last step is an assessment of the capacity of the bank to cope with the systemic crisis arising from both endogenous and exogenous factors. In the banking parlance, some broad areas are being considered for the understanding of financial soundness of banking institutions. Such parameters that are used to judge the financial soundness of bank are shown in table 1.

4. Methodology of Study

The study is primarily empirical in nature. Apart from describing the essence of soundness and the measurement tools used to judge the soundness of banks, the study graphically and statistically analyses the difference in the financial soundness indicators of the SBI and HDFC Bank. The study also attempted to compare and contrast the progress or otherwise of the soundness indicators between SBI and HDFC Bank over the period 2008-09 to 2015-16 in conformity with our stated objective. The rationale of the selection of the study period 2008-09 to 2015-16 lies in the fact that in India the effect of 'Global Financial Crisis' started to felt from the year 2008 onwards and it is widely believed that the effect of the crisis was more prominent in the areas of safety and soundness of banking system at large. The close end of the study period (i.e. 2015-16) coincides with the latest financial year end and therefore enables us to make an up to date assessment between two banks. This limits our sample size but if we

assume that the soundness indicators of SBI and HDFC Bank follow a normal distributive pattern (which in most of the cases is true), we can use inferential statistics for analysis.

The study uses secondary data collected mostly from the annual reports of the banks, Report on Trend and Progress of Banking in India, published reports, published articles and online resources. Descriptive statistics like mean, S.D, linear trend, etc. are used for the analysis. For inferential analysis the following hypothesis are formed and tested by applying t test with equal variance[2]:

H_{01} = There is no significant difference in Tier I capital adequacy position of SBI and HDFC Bank.

H_{02} = There is no significant difference in Tier II capital adequacy position of SBI and HDFC Bank.

H_{03} = There is no significant difference in Overall capital adequacy position of SBI and HDFC Bank.

H_{04} = There is no significant difference in Gross NPA position of SBI and HDFC Bank

H_{05} = There is no significant difference in Net NPA position of SBI and HDFC Bank

H_{06} = There is no significant difference in Provision Coverage Ratio of SBI and HDFC Bank

H_{07} = There is no significant difference in Return on Equity (ROE) of SBI and HDFC Bank

H_{08} = There is no significant difference in Return of Asset (ROA) of SBI and HDFC Bank

H_{09} = There is no significant difference in Liquid Asset to Total Asset Ratio of SBI and HDFC Bank.

5. Comparative Empirical Assessment of Soundness of SBI and HDFC Bank: Discussions And Results

In section 4, we have pointed out that soundness of banking institutions can be analyzed broadly on the areas of capital adequacy position, asset quality and its management, earning efficiency and liquidity management. In the following sub-sections, we will first analyze graphically the trend and progress of each parameter over the study period by using descriptive statistics and then test the statistical significance between SBI and HDFC Bank.

5.1. Assessment of Capital Adequacy Position of SBI and HDFC Bank

In banking business, capital is seen as cushion to protect the depositors and promote the stability and efficiency of financial systems. Capital adequacy reflects the overall financial soundness of the banks and also the ability to absorb unforeseen shocks/losses. Overall Capital Adequacy Ratio or Capital to Risk Weighted Asset Ratio (CRAR) is a measure of the amount of a bank's core capital expressed as a percentage of its risk-weighted asset. Mathematically, CRAR is expressed as follows:

CRAR = (Tier I Capital + Tier II Capital) / Risk weighted Assets

Where, Tier I Capital = (paid up capital + statutory reserves + disclosed free reserves) - (equity investments in subsidiary + intangible assets + current and brought forward losses). Tier I capital can absorb losses without a bank being required to cease trading. Tier II Capital comprises undisclosed reserves, general loss reserves, hybrid debt capital instruments and subordinated debts where Risk can either be weighted assets or the respective national regulator's minimum total capital requirement. Tier II capital can absorb losses in the event of a winding-up and so provides a lesser degree of protection to depositors.

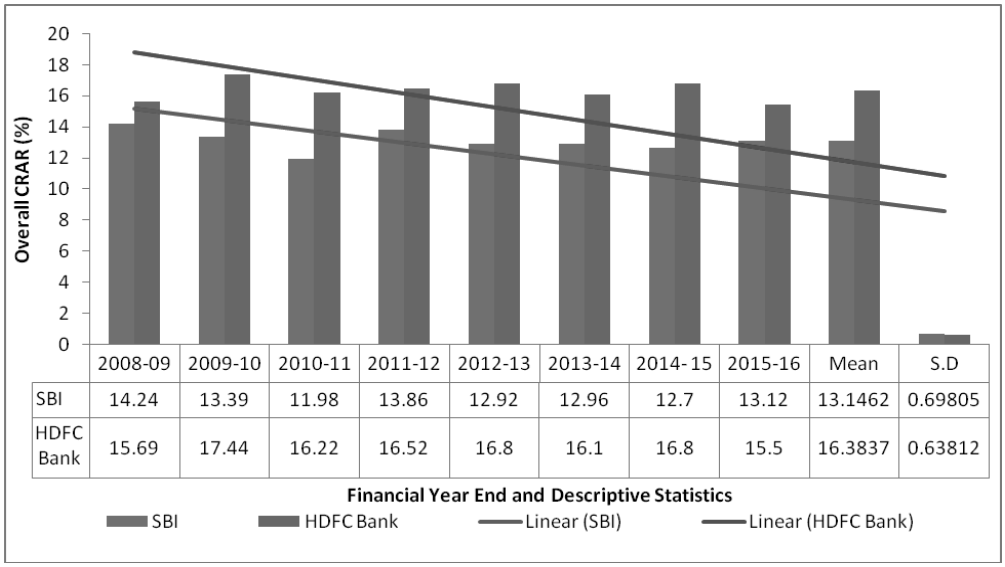
Apart from the overall CRAR, two other types of capital adequacy ratio are also being used for assessing the soundness of the bank. These are Tier I capital adequacy ratio and Tier II capital adequacy ratio. Banks in India are required to maintain minimum CRAR, Tier I and Tier II Capital adequacy ratio as prescribed by the RBI from time to time. As per the recent guidelines issued by RBI on the adoption of Basel III accord, banks in India are to maintain effective CRAR, Tier I and Tier II capital ratio of 11.5%, 7% and 2% respectively. We shall now graphically analyze these three types of capital adequacy ratios of SBI and HDFC Bank during the study period one by one.

From the figure 1, it is found that the Overall capital adequacy of SBI and HDFC Bank has been on an average 13.15% and 16.38% over the period under consideration with more variations being noticed in case of SBI (0.698 > 0.638). Overall

capital adequacy of this magnitude and variations seem to be a safe and optimum bet – neither being too low that there is a problem in case of a recession, and not being too high as to hamper growth. This range of overall CRAR is also very healthy considering the regulatory minimum prescription of 9% as per Basel- III Norm[3]. If we look at the linear trend line over the years, it is quite evident that the overall CRAR showed a declining trend for both the banks but in terms of magnitude the ratio remained at a higher level in case of HDFC Bank as compared to SBI.

In case of Tier I capital adequacy ratio as shown in figure 2, it was found that the mean stood at 9.48% and 12.17% for the period under consideration for SBI and HDFC Bank respectively, which is much higher than the minimum regulatory requirement of 7% under Basel III with a higher degree of variability is associated with HDFC Bank (1.11 > 0.74). This ratio also pointed out a healthy position with regard to absorbing the unforeseen losses for both the bank. On the other hand, if we look at the linear trend line over the years, we observed a similar pattern as we have noticed in case of Overall CRAR.

Figure 1: Comparison of Overall Capital Adequacy Position of SBI and HDFC Bank



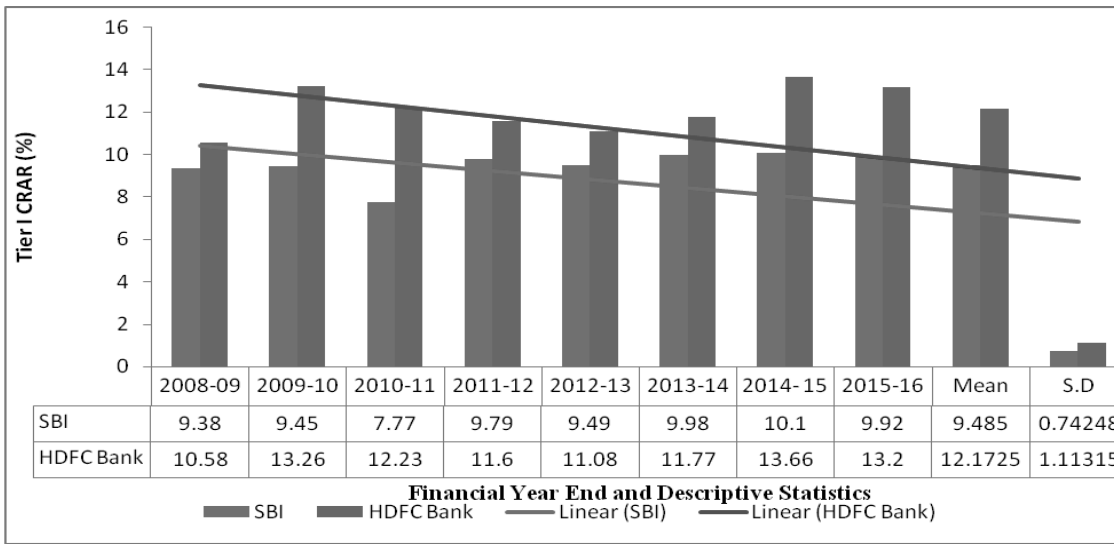
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Mean	S.D
SBI	14.24	13.39	11.98	13.86	12.92	12.96	12.7	13.12	13.1462	0.69805
HDFC Bank	15.69	17.44	16.22	16.52	16.8	16.1	16.8	15.5	16.3837	0.63812

Source: *Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years*

In case of Tier II capital adequacy ratio as shown in figure 3, we found that both SBI and HDFC Bank have more or less similar trend over the years with both mean of the ratio hovering under the same periphery – while the average Tier II CRAR stood at 3.67% and 4.21% for SBI and HDFC respectively, the variations in the ratio was larger in case of HDFC Bank as compared to SBI (1.09 > 0.72). In case of linear trend we can observe the same thing as we observed in case of overall CRAR and Tier I CRAR.

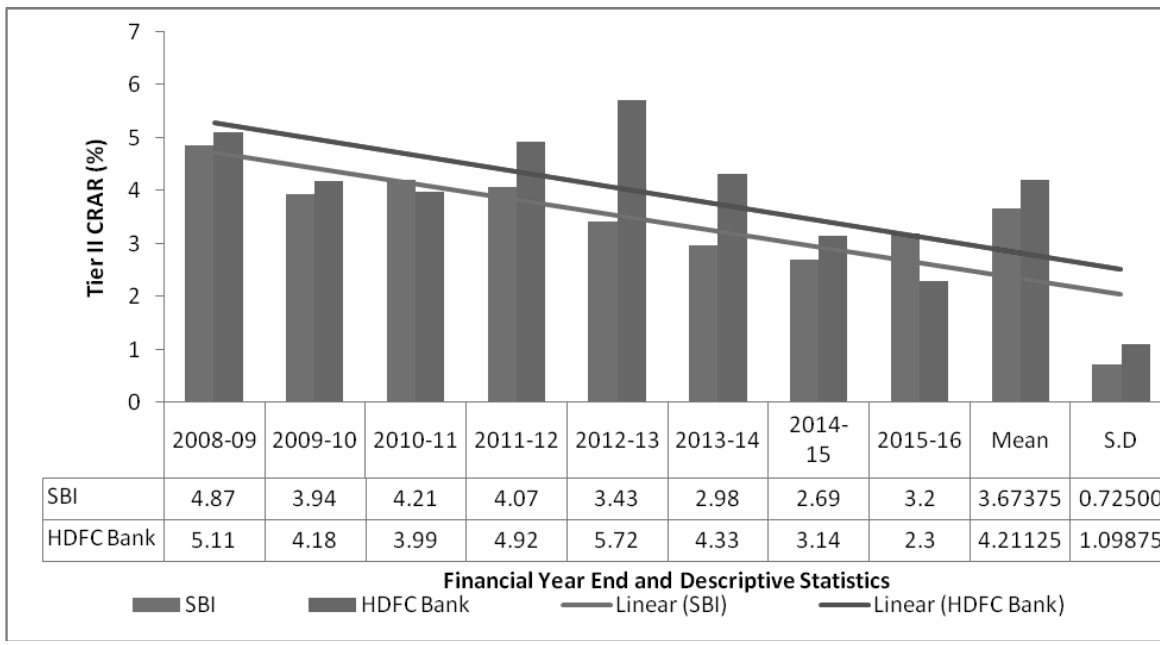
These are the generalised observations regarding capital adequacy position of the banks over the years which showed that HDFC is slightly better in terms of maintaining adequate capital for its operations as compared to SBI. Now, the question is whether this generalised difference in the CRAR ratios between the banks under the period of study are statistically significant enough or not. In order to understand that we are to test the first three hypotheses formed in the methodology section. Let us check the results of the t test as presented in Table 2.

Figure 2: Comparison of Tier I CRAR Position of SBI and HDFC Bank



Source: *Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years*

Figure 3: Comparison of Tier II CRAR Position of SBI and HDFC Bank



Source: Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years

The result of the statistical test points out that capital adequacy position of the SBI and HDFC Bank in terms of Overall CRAR and Tier I CRAR differ significantly in statistical terms at least for the period under consideration in case of two tails test at 5% and 1% LoC. However, Tier II CRAR does not shown any significant difference between the banks over the period of study neither at 5% and 1% LoC. As Tier II CRAR is considered as secondary cushion, we can safely conclude that the capital adequacy position of SBI and HDFC Bank differ significantly over the years under consideration and the data set supports the claim that HDFC Bank is sounder than SBI in terms of capital adequacy position.

Table 2: Results of Statistical Tests of Hypotheses (H_{01} - H_{09}) for Capital Adequacy, Asset Quality, Earning and Liquidity Management of SBI and HDFC Bank

Hypothesis/ Critical Region	Observed t-value	Decision	Conclusion
H_{01} = No significant difference in Tier I CRAR of SBI and HDFC Bank.	9.59**	H_{01} is rejected both at 5% and 1% LoC.	We can conclude that there is significant difference between SBI and HDFC Bank w.r.t. Tier I CRAR
H_{02} = No significant difference in Tier II CRAR of SBI and HDFC Bank.	0.267	H_{02} is accepted both at 5% and 1% LoC.	We can conclude that Tier II CRAR is not significantly different between SBI and HDFC Bank
H_{03} = No significant difference in overall CRAR of SBI and HDFC Bank	1.49	H_{03} is accepted at 5% LoC	There is no significant difference between SBI and HDFC Bank w.r.t. overall CRAR
H_{04} = There is no significant difference in Gross NPA position of SBI and HDFC Bank	1.32	H_{04} is accepted both at 5% and 1% LoC.	GNPA Ratio does not significantly differ in case of SBI and HDFC Bank.
H_{05} = There is no significant difference in Net NPA position of SBI and HDFC Bank	9.46**	H_{05} is rejected both at 5% and 1% LoC.	We can conclude that there exist significant difference between SBI and HDFC Bank w.r.t Net NPA ratio.
H_{06} = There is no significant difference in PCR of SBI and HDFC Bank	0.0004	H_{06} is accepted both at 5% and 1% LoC.	We can conclude that there does not exist any significant difference between SBI and HDFC Bank with respect to Provision Coverage Ratio (PCR).
H_{07} = There is no significant difference in Return on Equity (ROE) of SBI and HDFC Bank	0.0005	H_{07} is accepted both at 5% and 1% LoC.	Difference in ROE of SBI and HDFC Bank is not statistically significant during the period under review.
H_{08} = There is no significant difference in Return of Asset (ROA) of SBI and HDFC Bank	3.23**	H_{08} is rejected both at 5% and 1% LoC.	ROA of SBI and Axis Bank differ significantly
H_{09} = There is no significant difference in Liquid Asset to Total Asset Ratio of SBI and HDFC Bank	0.2	H_{09} is accepted both at 5% and 1% LoC.	Liquid Ratio does not significantly differ between SBI and HDFC Bank. during the period under consideration
Area under Critical Region			
At 5% Level of Confidence	$t \geq \| 2.15 \|$ at 14 degree of freedom		
At 1% Level of Confidence	$t \geq \| 2.98 \|$ at 14 degree of freedom		

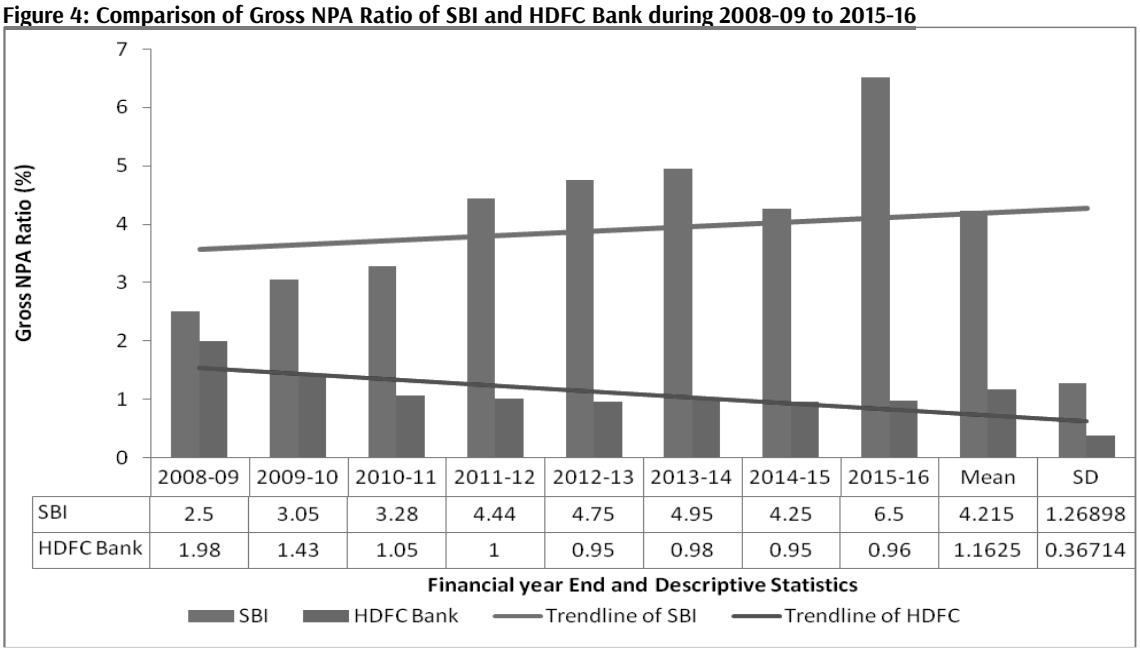
Source: *Constructed and Calculated on the basis of Annual Reports of SBI and ICICI Bank.*

Note: *** indicates significant both at 1% and 5% LoC*

5.2 Assessment of Asset Quality and its Management of SBI and Axis Bank

The quality of loan and advances portfolio (technically known as Asset Quality) has important significance for general health and soundness of banking system. The occurrence of NPAs may have serious consequential adverse effects on the profitability, liquidity and hence competitive functioning of the banking sector in general. Quality of asset in banking perspective means the soundness of loan and advances portfolio in terms of generating regular flow of income and return of principal amount. This quality is affected by the generation of Non-Performing Assets (NPAs). From banking point of view, a contract of lending generally includes a binding regarding the payment of interest and principal by the borrower. If any one of them is not performed duly, then the advance should be termed as NPA. Internationally as well as in India, 90 days overdue norm is followed to identify a loan facility as NPA. NPAs can be measured in two ways – Gross NPA and Net NPA[4]. For our study, we will use the Gross NPA ratio as a percentage of Total Advances and Net NPA Ratio as a percentage of Net Advances.

Figure 4: Comparison of Gross NPA Ratio of SBI and HDFC Bank during 2008-09 to 2015-16

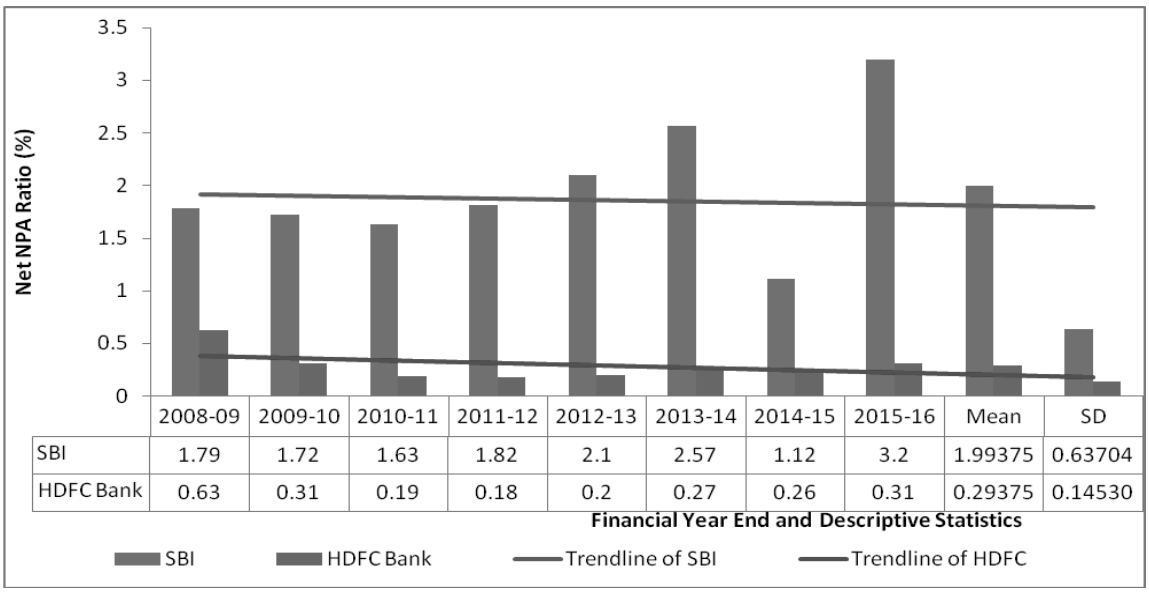


	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Mean	SD
SBI	2.5	3.05	3.28	4.44	4.75	4.95	4.25	6.5	4.215	1.26898
HDFC Bank	1.98	1.43	1.05	1	0.95	0.98	0.95	0.96	1.1625	0.36714

Source: *Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years*

The trend and progress of Gross NPA ratio of SBI and HDFC Bank over the years 2008-09 to 2015-16 are presented in figure 4 along with descriptive statistics and trend-lines. It can be seen that Gross NPA ratio trend line of SBI showed increasing pattern while HDFC Bank witnessed declining pattern during the period 2008-09 to 2015-16. Another noticeable fact is that HDFC Bank had been able to keep Gross NPA ratio within a very low bandwidth over the years, whereas the ratios had gone far above in case of SBI. As a result, the mean GNPA ratio of SBI during the period (4.215%) is much higher (almost 3.63 times) than that of HDFC Bank (1.16%) with more variations being noticed in case of SBI (1.27 > 0.36). Graphical analysis, therefore, points out that HDFC Bank had been managing its Gross NPA ratio in a better way as compared to SBI during the period under review.

Figure 5: Comparison of Net NPA Ratio of SBI and HDFC Bank during 2008-09 to 2015-16



	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Mean	SD
SBI	1.79	1.72	1.63	1.82	2.1	2.57	1.12	3.2	1.99375	0.63704
HDFC Bank	0.63	0.31	0.19	0.18	0.2	0.27	0.26	0.31	0.29375	0.14530

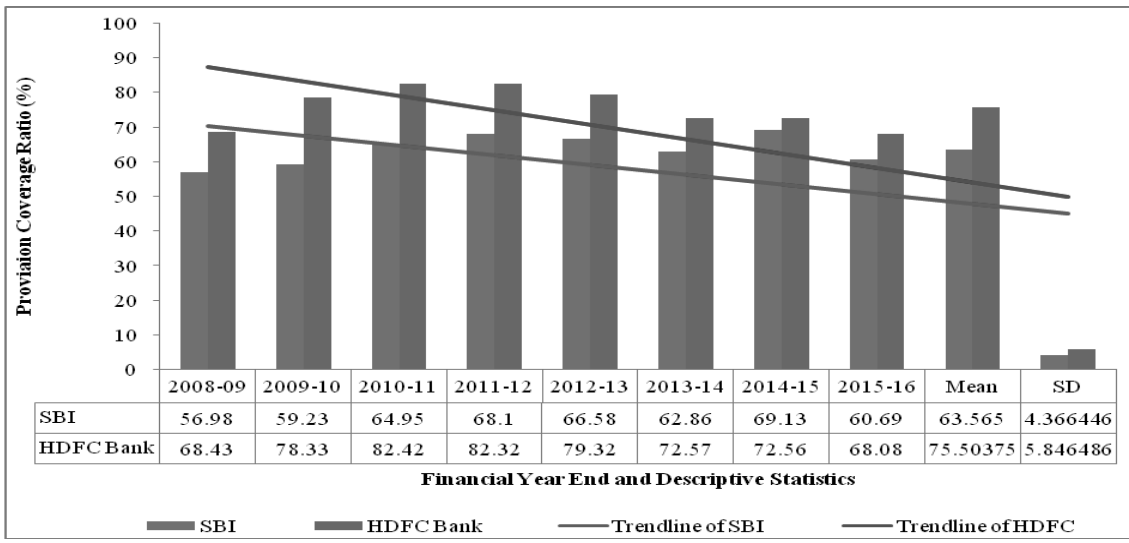
Financial Year End and Descriptive Statistics

Source: *Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years*

The trend and progress of Net NPA ratio of SBI and HDFC Bank are presented in figure 5 along with descriptive statistics and trend-lines. It can be seen that gap between the trend line of Net NPA ratio between SBI and HDFC Bank during the period 2008-09 to 2015-16 is very wide indicating a clear better management of the ratio on the part of the HDFC Bank over the years. Another noticeable fact is that HDFC Bank had been able to keep Net NPA ratio within a very low bandwidth over the years, whereas the ratios had gone far above in case of SBI. As a result, the mean Net NPA ratio of SBI during the period (1.99%) is much higher (almost 6.86 times) than that of HDFC Bank (0.29%) with more variations being noticed in case of SBI (0.64 > 0.15). The graphical analysis of the two crucial asset quality measures clearly indicates a better management of quality of asset portfolio on the part of the HDFC Bank as compared to SBI.

Provision Coverage Ratio (PCR)[5], on the other hand, is considered to be a very significant soundness indicator in relation to management of quality of asset portfolio. In respect of PCR, HDFC Bank showed more robustness as compared to SBI as both the Average PCR and its variability during the period is comparatively higher in case of the HDFC Bank (figure 6).

Figure 6: Comparison of PCR of SBI and HDFC Bank (2008-09 to 2015-16)



While the average PCR during the period under consideration stood at 63.57% and 75.50% for SBI and HDFC Bank respectively but more variations is noticed in case of HDFC Bank as compared to SBI (5.85 > 4.37). From figure 6, it is found that the trend line of PCR for both the banks showed a declining pattern thereby indicating that the banks are setting aside either less money or inadequate money for provisioning purposes. But here also there exist a gap between the trend line of SBI and HDFC Bank, though the gap is narrowing down with the passage of time.

Overall speaking, HDFC Bank is found to be in a better place as compared to SBI in regard to the management of asset quality of bank in terms of all the three parameters – Gross NPA ratio, Net NPA ratio and PCR. Now, the question is whether this generalised difference in the above three ratios between the banks under the period of study is statistically significant enough or not. In order to understand that we are to test the 4th, 5th and 6th hypotheses and the results of t test with unequal variance is shown in Table 2. It is seen that there exist significant difference between SBI and HDFC Bank with respect to management of Net NPA ratio. PCR, on the other hand, does not reveal any significant difference between the banks during the period under consideration. So, we can say that HDFC Bank performed comparatively better than SBI in terms of arresting the deterioration in asset quality as measured in terms of Net NPA ratio during the period 2008-09 – 2015-16.

5.3. Assessment of Profitability of HDFC Bank and SBI

There are various measures available in order to judge the efficiency of earnings or profitability. Among them Return on Assets (ROA), Return on Equity (ROE), Profit per Employee, Interest Margin to Gross Income are important. As mentioned in section 4, we would use ROA and ROE of HDFC Bank and SBI over the period 2008-09 to 2015-16 for comparison and statistical tests.

In case of banks, ROA is an indicator of how profitable a bank is relative to its total assets. ROA is calculated by dividing a bank's annual earnings by its total assets, as a percentage.

ROA = Net Income / Total assets

Return on Equity (ROE), on the other hand, measures the extent of return generated by the bank on its shareholders' equity. It is calculated as:

ROE= Net Income/Shareholder's Equity

From figure 7, we can see that ROE of SBI showed declining

trend over the years under consideration. ROE of SBI decreased from 15.07% to 7.74% during the period 2008-09 to 2015-16. In case of HDFC Bank, ROE showed overall steady trend in which the ratio being eventually increased during the period from 15.32 % in 2008-09 to 18.29 % in 2015-16. But if we look at the average during the period, we found that average ROE of SBI (12.71%) is much lower than that of HDFC Bank (18.29 %) because of the comparatively slight higher variations being attached with SBI (2.74>2.04).

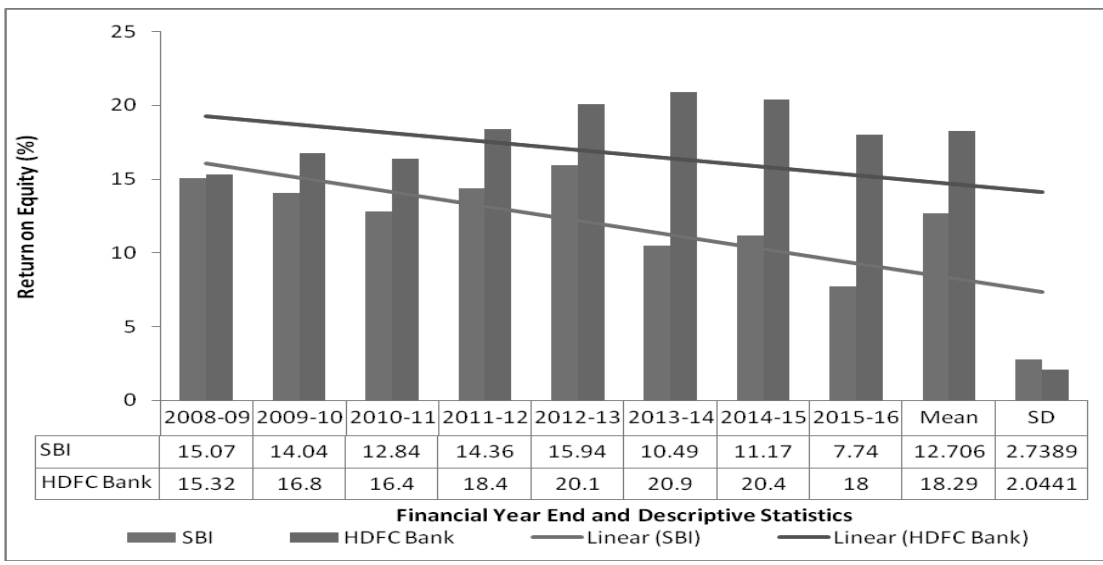
A quick glance to figure 8 revealed that SBI's ROA come down from 1.04 to 0.48 whereas HDFC Bank's ROA gone up from 1.22% to 1.9% during the period 2008-09 to 2015-16. The average ROA during the period is much higher in case of HDFC Bank (1.69%) as compared to SBI (0.79%) with comparatively more variations is being attached with HDFC (0.27> 0.19). Apparently, the trend line of banks indicates that HDFC Bank performed far better than SBI during the period under review. Let us now statistically investigate these generalised observations which are presented in Table 2.

The statistical tests, however, showed mixed results. In case of ROA, t test revealed that the difference in ROA between SBI and HDFC Bank over the period under study is statistically significant both at 5% and 1% LoC under two tails test. In case of ROE, however, the test do not lend support to our generalised observations for profitability of the two banks and dictates us to conclude that the profitability of HDFC Bank and SBI in terms of ROE does not differ significantly. But in case of ROA difference is significant and we can say that HDFC Bank is better performed in terms of ROA as compared to SBI.

5.4. Comparison of Liquidity Management in Axis Bank and SBI

The Liquid Ratio as measured by liquid assets to total assets is an important liquidity management tool to assess the extent liquid assets can support bank's asset base especially in case of financial crisis. Generally, banks prefer to hold little cash, preferring to put liquid assets to productive use. This approach can yield low liquid assets to total assets ratio. Liquid ratio as measured by liquid assets of bank (It include cash and balance with RBI and balance with banks and money at call and short notice) to total assets is one of the most important criteria to evaluate the Liquidity Management of banks. For the present study liquid asset to total asset ratio is calculated from the Annual Reports of SBI and HDFC Bank over the period of study as shown in Figure 9.

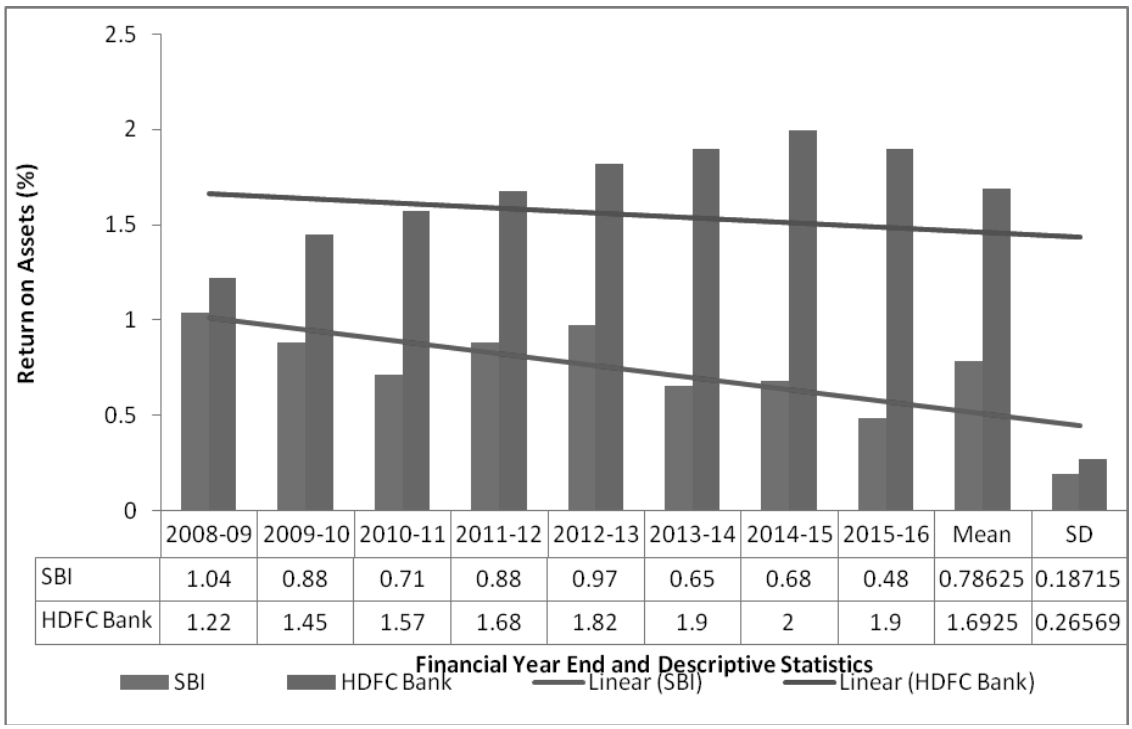
Figure 7: Comparison of ROE of SBI and HDFC Bank (2008-09 to 2015-16)



Source: *Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years*

It can be seen that while HDFC Bank maintained liquid ratio of 8.25 % on an average, SBI has been managed to keep it at 6.83% with comparatively more variations have been noticed in case of HDFC Bank (2.81 > 0.74) as compared to SBI. General observation regarding trend of liquidity ratio highlights that while SBI maintained a stable liquidity position over the years, the ratio in case of HDFC Bank showed a declining trend for the same period but the difference is not wide enough. This generalised observation with regard to the Liquid Asset to Total Asset Ratio is confirmed by the result of the statistical test as shown in table 2. So we can conclude that liquidity management in terms of liquid ratio does not differ significantly between HDFC Bank and SBI over the years under consideration.

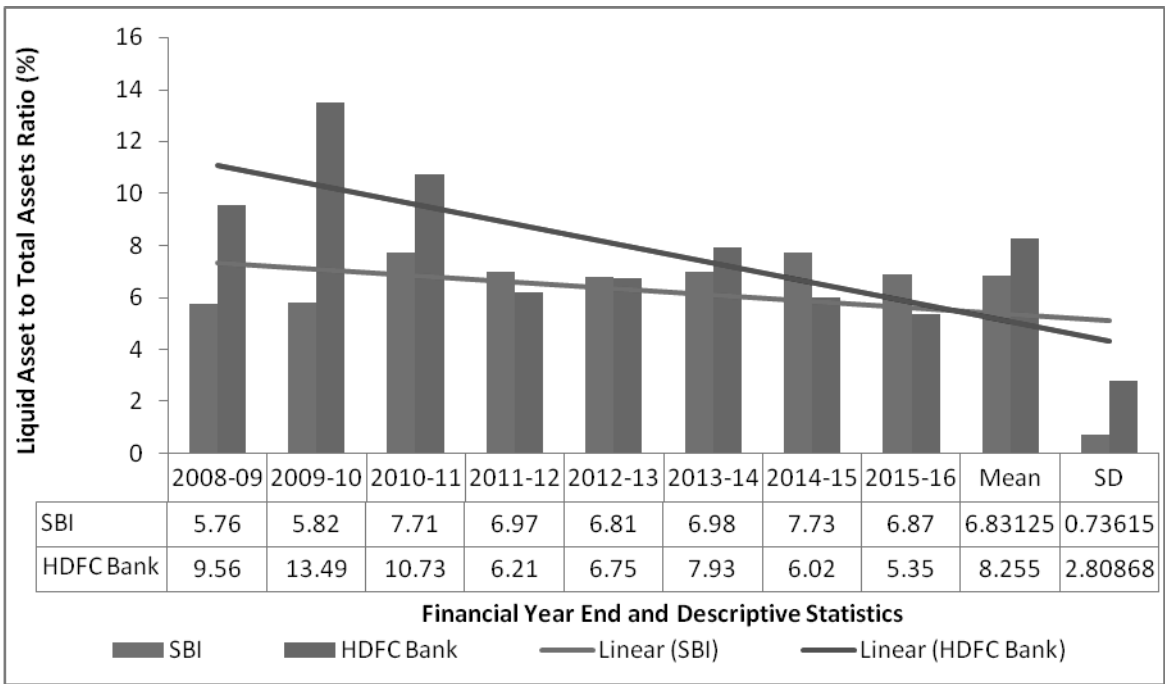
Figure 8: Comparison of ROA of SBI and HDFC Bank (2008-09 to 2015-16)



	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Mean	SD
SBI	1.04	0.88	0.71	0.88	0.97	0.65	0.68	0.48	0.78625	0.18715
HDFC Bank	1.22	1.45	1.57	1.68	1.82	1.9	2	1.9	1.6925	0.26569

Source: *Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years*

Figure 9: Comparison of Liquid Ratio of SBI and HDFC Bank (2008-09 to 2015-16)



Source: Constructed and Calculated on the basis of Annual Report of SBI and HDFC Bank, Relevant Years

6. Summary of findings and Conclusion

- ✿ Based on the above analysis, the following are the summary of observations that can be made about the Soundness of the SBI and HDFC bank:
- ✿ Overall Capital adequacy of SBI and HDFC Bank has been on an average 13.15% and 16.38% over the period under consideration with more variations being noticed in case of SBI (0.698 > 0.638).
- ✿ Linear trend line of overall CRAR showed a declining trend for both the banks but in terms of magnitude the ratio remained at a higher level in case of HDFC Bank.
- ✿ The average Tier I capital adequacy ratio stood at 9.48% and 12.17% for the period under consideration for SBI and HDFC Bank respectively, which is much higher than the minimum regulatory requirement of 7% under Basel III with a higher degree of variability is associated with HDFC Bank (1.11 > 0.74).
- ✿ Tier I CRAR showed a declining trend for both the banks but in terms of magnitude the ratio remained at a higher level in case of HDFC Bank as compared to SBI.
- ✿ Tier II capital adequacy ratio of both SBI and HDFC Bank have more or less similar trend over the years – while the average Tier II CRAR stood at 3.67% and 4.21% for SBI and HDFC respectively, the variations in the ratio was larger in case of HDFC Bank as compared to SBI (1.09 > 0.72).
- ✿ Statistical test pointed out that capital adequacy position of the SBI and HDFC Bank in terms Tier

I CRAR differ significantly for the period under consideration both in at 5% and 1% LoC. However, Tier II CRAR and Overall CRAR do not shown any significant difference between the banks.

✿ Gross NPA ratio trend line of SBI showed increasing pattern while HDFC Bank witnessed declining pattern during the period 2008-09 to 2015-16.

✿ HDFC Bank had been able to keep Gross NPA ratio within a very low bandwidth over the years, whereas the ratios had gone far above in case of SBI. As a result, the mean GNPA ratio of SBI during the period (4.215%) is much higher (almost 3.63 times) than that of HDFC Bank (1.16%) with more variations being noticed in case of SBI (1.27 > 0.36).

✿ The gap between the trend lines of Net NPA ratio of SBI and HDFC Bank is very wide indicating a clear better management of the ratio on the part of the HDFC Bank over the years.

✿ HDFC Bank had been able to keep Net NPA ratio within a very low bandwidth over the years, whereas the ratios had gone far above in case of SBI. As a result, the mean Net NPA ratio of SBI (1.99%) is much higher (almost 6.86 times) than that of HDFC Bank (0.29%) with more variations being noticed in case of SBI (0.64 > 0.15).

✿ The graphical analysis of the two crucial asset quality measures (GNPA and NNPA ratio) clearly indicates a better management of quality of asset portfolio on the part of the HDFC Bank as compared to SBI.

✿ Average PCR are 63.57% and 75.50% for SBI and HDFC Bank respectively but more variations is noticed in case of HDFC Bank as compared to SBI (5.85 > 4.37).

✿ The trend line of PCR for both the banks showed a declining pattern thereby indicating that the banks are setting aside either less money or inadequate money for provisioning purposes.

✿ There exists significant difference between SBI and HDFC Bank with respect to management of Net NPA ratio.

✿ PCR does not reveal any significant difference between the banks during the period under consideration.

✿ ROE of SBI decreased from 15.07% to 7.74% during the period 2008-09 to 2015-16. In case of HDFC Bank, ROE showed overall steady trend in which the ratio being eventually increased during the period from 15.32 % in 2008-09 to 18.29 % in 2015-16.

✿ The average ROE of SBI (12.71%) is much lower than that of HDFC Bank (18.29 %) because of the comparatively slight higher variations being attached with SBI (2.74>2.04).

✿ SBI's ROA come down from 1.04 to 0.48 whereas HDFC Bank's ROA gone up from 1.22% to 1.9% during 2008-09 to 2015-16. The average ROA is much higher in case of HDFC Bank (1.69%) as compared to SBI (0.79%) with comparatively more variations is being attached with HDFC (0.27> 0.19).

✿ The difference in ROA between SBI and HDFC Bank over the period under study is statistically significant both at 5% and 1% LoC under two tails test.

✿ In case of ROE the test does not lend support to our generalised observations for profitability of the two banks and dictates us to conclude that the profitability of HDFC Bank and SBI in terms of ROE does not differ significantly.

✿ While HDFC Bank maintained liquid ratio of 8.25 % on an average, SBI has been managed to keep it at 6.83% with comparatively more variations have been noticed in case of HDFC Bank (2.81 > 0.74) as compared to SBI.

✿ Statistical test confirmed the generalised observations that the difference in liquidity ratio between the banks is not significant enough.

As Tier II CRAR is considered as secondary cushion, we can safely conclude that the capital adequacy position of SBI and HDFC Bank differ significantly over the years under consideration and the dataset supports the claim that HDFC Bank is sounder than SBI in terms of capital adequacy. With regard to the management of asset quality of bank in terms of all the three parameters – Gross NPA ratio, Net NPA ratio and PCR, HDFC Bank is found to be performed in a better way as compared to SBI. Overall, we can conclude that that apart from ROE, Liquidity management, Tier II CRAR and Overall CRAR HDFC Bank performed better than SBI during the period under study and sounder than that of SBI.

However, the study has its limitations. The most important one is the small sample size because of our stated objective to look after the period of 'Global Financial Crisis'. Naturally, there is a future scope of expanding the horizon of the study period and consequently, the findings may be revised.

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Foot Notes:

1. SBI is largest public sector bank in terms of market capitalization of Rs.3,14,726.71 crore as on 31.03.2016, whereas HDFC is the largest private sector bank in terms of market capitalization of Rs 1,79,320.15 crore as on 31.03.2016.

2. Variance of soundness indicators of SBI is more or less same as that of HDFC Bank over the longer run.

3. As per Basel III Norm, Indian banks are required to take further steps for strengthening the capital adequacy position by building Capital Conservation Buffer (CCB) at 2.5% and it would be taken into consideration for Effective CRAR. The RBI has provided for a broad transitional arrangement for the same by 2018 (for more details refer to Bhowmik, G (2014), Management Accountant, October. Here, although the average takes into account the CRAR calculated on the basis of Basel II norm in some years yet the higher margin than the minimum can withstand the dilution in the ratio under Basel III very safely.

4. The sum total of the Sub-standard advances, Doubtful advances and Loss advances is known as Gross NPAs. While Net NPAs are obtained from Gross NPAs after deducting the interest due but not received, claims received from credit guarantors and pending final settlement, part payment received and kept in suspense account and total provisions made up to date.

5. PCR refers to the cumulative provision held for NPAs as a percentage of Gross NPAs. It measures the extent of provisional back up for the existing NPAs.

Nexus between Microfinance and Social Empowerment in Bilaspur: A Study

Kabir

Abstract:

The purpose of this article is to study the impact of Microfinance on social empowerment of the beneficiaries of Microfinance Institutions in Bilaspur city of Chhattisgarh. This paper is based on both primary and secondary data. Primary data was collected from 205 respondents who are beneficiaries of Microfinance Institutions. The major outcome of the correlation and multiple regressions is that self confidence, children's education decision, health and hygiene condition, family planning decision, and sanitation condition have significantly improved after taking microfinance. However the condition of Potable water sources has not improved. This paper is based on interpretation and analysis of original data collected from the respondents. The study shows the impact of Microfinance on improving the social status of the beneficiaries of the Microfinance Institutions. After this study the policy makers may reframe their strategies and policies of Microfinance services in a manner to get more and more beneficiaries benefitted and have improvement in the social status after taking Microfinance. Due to paucity of time and money the sample size is of 205 respondents which are quite small to represent the whole target population. Also there is a scope for future researcher to conduct similar study on large sample size and with other factors involvement too to get the more detailed insight of the same.

Key Words:
Microfinance, Social Empowerment, Beneficiaries

1. Introduction

1.1 Background of the study

In this present scenario Microfinance has been evolved as an effective and attractive tool for economic development to help poor and marginalised section of the society especially women. It is the perception of its beneficiaries that plays a vital role in improving livelihoods, reducing weakness, and nurturing social as well as economic empowerment.

With the emphasis of policy makers towards microfinance the practice of developing the down up approach of development has become quite practically feasible. That is adopting development policy by firstly nurturing the root or the lower level of the society.

Major delivery models of microfinance in India:

1) Self-Help Group (SHG) Bank Linkage Program.

2) Microfinance Institutions (MFIs)

In terms of outreach particularly in India Self-Help Group model leads the race. However in the international picture its MFI model which has greater outreach and is preferred by most of the countries as a tool for women empowerment.

The Microfinance Movement was initiated in 1970s with the main aim of providing microcredit or small loan to the excluded section of society. However, over last decade it has become an express developing industry which has been rendering financial services to the millions of people all over the world. A significant portion of India's population lives below the poverty line and thus for them specially Microfinance has vital importance. However, unfortunately the outreach of Microfinance in Chhattisgarh is quite low as compared to National Average and it is also below the satisfaction level as compared to other states in Central India. As far as bank loan disbursed in Chhattisgarh under Microfinance through SHG model is concerned during the F.Y. 2015-16 it is Rs. 9636.05(lakhs) which shows positive increase as compared to previous year but still there is a lot more to be done in the state. (Source: Status of Microfinance in India 2015-16)

It is observed that providing Microfinance to micro enterprises is a helpful tool for progress and eradication of poverty from the root itself. Unavailability of utmost required fund is one of the primary constraints for starting or running of any business. A number of Banks, NGO's and Non Banking Financial Companies (NBFC) have emerged in the financial market for rendering Microfinance services in different cities of India including the state of Chhattisgarh especially in its major districts including Bilaspur district. But it is necessary to evaluate how much effective government and NGO's effort are. The research conducted in recent few decades on impact of microfinance on its beneficiaries by the researchers, contributors and practitioners has shown quite encouraging results. However, facts regarding their achievement and progress in Chhattisgarh are still immature or underdeveloped.

1.2 Statement of the problem

The present study is conducted to seek the answer of the question.

"Does access to microfinance services contribute to social empowerment of the beneficiaries"?

1.3 Purpose of the study

The main purpose of the study is to evaluate the impact of microfinance services on the social empowerment of the rural and urban area beneficiaries of Microfinance Institutions in Bilaspur district of Chhattisgarh. The objective of the study can be achieved by evaluating the impactof microfinance services on social empowerment of the beneficiaries who have taken microfinance from the microfinance institutions.

In addition to answer to the above research question this study will also answer the following questions:-

Does access to microfinance services lead to development of self confidence, decisions related to children's education, health and hygiene conditions, family planning decisions, sanitation conditions, and sources of potable water?

Microfinance provides access to microcredit to those marginalised section of people who do not have access to formal banking access. And it is a remarkable step towards the development process by merging the excluded section of the society in to the main stream of the society

The Asian Development Bank has also been actively promoting best practices and innovative techniques in the area of Microfinance in its strategy 2020.

It is doing so through loans, credit lines, investments, grants, guarantees, technical assistance in areas relating and allied to Microfinance and Financial Inclusion (2014 Project Classification Scheme).

There is a great scope for further research in the field of Microfinance sector and it is also required to conduct some empirical research to assess the impact of microfinance services on social and economic status of its beneficiaries. This study will help in understanding the scenario and answer the above research question.

2.Literature Review

Das (2016), WSHGs are mainly expected to empower rural marginalized women. Micro-Finance has emerged as one of the most sustainable and effective tools for enabling the poor and disadvantaged sections of the society basically for rural women, to have access to institutional credit.

Jhawar and Chawla (2015) recommended in their study that to get positive output from micro entrepreneur the Microfinance Institutions should observe their interest rate policies and provide easy accessibility of the same.

Vachya and Kamaiha (2015) in their empirical examination revealed that SHG Bank Linkage Program has a positive impact on household decision making by women. It has also brought positive changes in terms of marital status, income, family type, including economic factors. The microfinance has positively altered the living conditions of SHG members including women members.

Kato and Kratzer (2013) in their study concluded that traditionally the position of women in Tanzania has been low in comparison to men. The survey was conducted on 454 women in the area of study (305 members of MFIs and 149 non-members). The results of the study show significant distinction between the women members of MFIs and non-members in the dependant variables associated to women empowerment. Women members of MFIs have more control over savings and income generated from the business, greater role in decision-making, greater self-efficacy and self-esteem, and greater freedom of mobility and increased activities outside home.

Anal (2013) in his study concludes that microfinance SHGs are necessary to overcome exploitation, create confidence, for financial self dependence of the rural people, especially among women who are deprived section of the society.

Dobra (2011) said that it allows holistic development by increasing the income of the entire family, which has reflection throughout the economy and society as a whole at every level. However, to improve their effectiveness, microfinance programs should focus on enhancing their related adaptation and the political issues.

Muhammad, Shaheen, Naqvi, and Zehra (2011) highlighted the role and effectiveness of microfinance in women empowerment. The data used for this study were collected from Women empowerment index (WDI) and the book of Pakistani statistics. An empirical investigation was carried out by using Johansen co integration approach to evaluate the long-term correlation between poverty, growth, and microfinance and women empowerment. To analyze women empowerment, a study index was designed. The results of this study established that there is a positive and significant correlation between women empowerment and the selected variables with respect to Pakistan.

Noreen (2011) in her study made an attempt to explore the socio economic factors of women empowerment in which microfinance is crucial economic determinant. This study used regression analysis based on primary data of Bahawalpur City to check the relationship of different socio economic determinants on women empowerment. Women empowerment measured by constructing simple index using five indicators related to child health, education, selection of spouse of children, purchase of basic goods and decision about the use of loan. The results show that women empowerment is significantly influenced by age, education of husband, father inherited assets, marital status, number of sons alive and microfinance. Age, education of husband, no of live sons and father inherited assets are more statistically significant variables in this study. It is also concluded that as microfinance is major explanatory variable in this study has some positive role in empowerment but not as much as was expected by the researcher. It is suggested that education facilities and family protection must be provided in proper way. Microfinance institutions should strengthen and expand their support to resource poor women.

Reji (2009) in his study concluded that the microfinance through SHG model has shown visible economic impact on saving habits, household income, and acquisition of household assets. It also has positive impact on social factors like increased role in household decision making, improved status and self confidence, ability to deal with adversities, and community involvement.

Amin and Choudhary (2008) concluded that Microfinance is

not a panacea to tackle all the causes of poverty and it may take a long time to bring about gender equity and women's empowerment.

Sharma (2007) revealed that microfinance leads to empowerment of women's participating in it. This study is conducted in Nepal and studies the effects of women's participation in group-based micro-credit programs from large population providing qualitative responses. Microfinance has enlarged the role of women in household decision-making, giving greater access to financial resources, now they can convince their husband on various issues and having greater freedom of movement. Due to microfinance movement the level of communication between husband and wife in family has improved. Ecologically, the higher impact on women's empowerment was noticed in terai. The reason may be quite lower social -economic status of Terai women at the time when the program was started as compared to that of hill areas. Due to this fact, even a little change in their status is reflected highly.

Dessy and Ewodou (2006) in their paper show that access to microfinance services becomes only necessary, but not sufficient condition for female empowerment. Based upon a game-theoretic model of activity choices by ex ante homogenous women, they argued that conditioning well-trained women's access to credit to the adoption of high-productivity activities may enable MFIs to bring on the emergence of networks of female entrepreneurs large enough to mitigate patriarchal practices that raise the costs of operating such activities in the informal economy.

Littlefield, Murduch, and Hashemi (2003) said that the beauty of microfinance is that, as programs approach financial sustainability, they can reach far beyond the limits of scarce donor resources.

2.1 Basic Concepts of Microcredit and Microfinance

Microfinance is considered to be an appropriate tool for providing finance to small entrepreneurs and businessman in rural and urban areas. It is the service about providing financial services to the marginalised people who are deprived of formal banking access and credit.

2.2 Hypotheses of the Study

H_1: There is no relationship between socio status empowerment through microfinance services.

H_2: There is no relationship between improvement in self confidence and social empowerment through microfinance services.

H_3: There is no relationship between Children Education and social empowerment through microfinance services.

H_4: There is no relationship between health and hygiene conditions and social empowerment through microfinance services.

H_5: There is no relationship between family planning and social empowerment through microfinance services.

H_6: There is no relationship between sanitation conditions and social empowerment through microfinance services.

H_7: There is no relationship between source of potable water and social empowerment through microfinance services.

3. Methodology

3.1 Objective of the Research Study: To analyze the impact of microfinance services on social empowerment of its beneficiaries in Bilaspur City of Chhattisgarh.

3.2 Nature of the Research Study: Descriptive research.

3.3 Sample Design:

3.3.1 Area of the Research Study: covering urban and rural areas in Bilaspur City.

3.3.2 Target Respondent: Urban and rural beneficiaries of microfinance services.

3.3.3 Sampling Technique: Non-probability sampling technique.

3.3.4 Sampling Method: Snowball sampling method.

3.3.5 Sampling Size: 215.

3.4 Data Collection Method: Survey method.

3.5 Research Instrument: Structured questionnaire (Pilot study was carried out among 25 respondents and it was not considered for further data analysis).

3.6 Statistical Test Applied: Descriptive Statistics (Frequency and Percentage analysis), Reliability Statistics (Cronbach's Alpha), Correlation Analysis and Multiple Regression Analysis through SPSS version 20.

3.7 Survey Measures:

Measures used in the current research study were adapted from earlier studies which are mentioned in Table I.

Each statement was measured on Five Point Likert Scale ranging from "Strongly Disagree (1)" to "Strongly agree (5)".

TABLE - 1

Construct	Denoted as	Sources of Item Adopted
Social Empowerment	(Y)	
Self Confidence	(X_1)	Cheston& Kuhn (2002), Puhazehndi&Satyasi (2000)
Children's Education	(X_2)	Kabeer (1999), Dhawamani(2010)
Health & Hygiene Condition	(X_3)	Murthy (1997), NCAER (2008)
Family Planning	(X_4)	Develtere and Huybrechts (2002)
Sanitation Condition	(X_5)	Singh (2003)
Potable water	(X_6)	Kabeer&Noponen (2005)

4. Research Finding

4.1 Demographic Profile of Respondents

Table II depicted that a significant proportion of respondents (n = 92, 44.88%) were of the age group of 31-40. Maximum respondents married (n = 135, 65.85%) and living with a family size of 4-6 members (n = 135, 65.85%). Though maximum respondents were studied up to higher secondary level (n = 89, 43.41%), it is also observed that a significant proportion of the respondents (n = 26, 12.68%) were having education upto primary. However 30.24% (n = 62) respondent were having graduation and above degree that shows the improvement in the level of education among the population.

TABLE -2: Demographic Profile

Demographic Variables	Category	Statistics	
		Frequency	Percentage (%)
Age (Years)	20-30	51	24.88
	31-40	92	44.88
	Above 40	62	30.24

Demographic Variables	Category	Statistics	
		Frequency	Percentage (%)
Education Level	Illiterate	28	13.66
	Primary – Secondary	26	12.68
	Higher Secondary	89	43.41
	Graduate & above	62	30.24
Marital Status	Unmarried	53	25.85
	Married	135	65.85
	Divorcee / Widow	17	8.29
Size of Family	1-3	27	13.17
	4-6	135	65.85
	7 & above	43	20.97

4.2 Reliability Statistics

In order to prove the internal reliability of the model used, the author has applied Cronbach's Alpha Test of Reliability. Application of this test specifies that items related to each Applying this test specified whether the items pertaining to each element are internally reliable and whether they can be used to measure the same construct or element of social empowerment. According to Nunnaly (1978) the rule of thumb for Cronbach's alpha should be 0.700 or above. However, one thing is to be kept in mind. The alpha is very much dependent on the number of items included in it.

Table 3 depicts the reliability results of the factors leading to social empowerment of beneficiaries which are highly consistent.

TABLE -3: Reliability Statistics (Cronbach's Alpha)

Variable	No. of Statements	Cronbach's Alpha (α)
Social Empowerment	01	-
Self Confidence	04	0.732
Children's Education	03	0.702
Health & Hygiene Condition	05	0.748
Family Planning	03	0.701
Sanitation Condition	03	0.714
Potable Water	03	0.711

4.3 Correlation Analysis:

Pearson correlation coefficient was used to determine the direction, strength, and significance of the bi-variate relationships of the variable in the study. Based on the results in Table 4, it was found that out of six independent variables; first five (i.e. X1, X2, X3, X4 and X5) were positively correlated with dependent variable (i.e. Y) 0.354, 0.387, 0.361, 0.312 & 0.311 respectively, thus negating the Null hypotheses, H_1 To H_5.

TABLE 4: Correlation Analysis

Details	X_1	X_2	X_3	X_4	X_5	X_6
Karl Pearson Correlation	0.354	0.387	0.361	0.312	0.311	0.074

Dependent Variable: Y (Social Empowerment)

4.4 Multiple Regression Analysis:

The model summary table reports the strength of the relationship between the model and the dependent variable. R represents correlation between the observed and predicted value of the selected dependent variable. Higher Larger value of R indicates stronger relationship and also indicates that model fit the data well. R square is the proportion of variation in the dependent variable explained by regression model. Higher value of R Square (more than 0.700) indicates that model has good predictive ability.

TABLE 5: Multiple Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
01	0.46[a]	0.22	0.214	0.7321

Predictors: (Constant), X_1, X_2, X_3, X_4, X_5, X_6.

The result of regression analysis based on six independent selected variables (i.e. Self Confidence, Children's Education, Health and Hygiene Condition, Family Planning, Sanitation Condition, Potable Water) indicate positive relationship (R = 0.460) and statistically significant relationship (P 0.000 < 0.05) with dependent variable (i.e. social empowerment through microfinance services). The independent variables accounted for 22.00 percent (R^2 = 0.220) of variance in dependent variable (refer Table 5).

5. Discussion and Conclusion

This study is performed to analyse the impact of microfinance on social empowerment of the beneficiaries of Microfinance Institutions. The major outcome of the correlation and multiple regression is that self confidence, children's education decision, health and hygiene condition, family planning decision, and sanitation condition have improved after taking microfinance. However the condition of Potable water sources has not been improved after microfinance. Traditionally, it was felt that only economic status of the beneficiaries was developed in the course of time after microfinance. But later on it was observed that beneficiaries show positive sign in both social and economic status growth. And the result of this study reveals that microfinance has improved their social condition and improved their self confidence and also the ability to contribute in their decisions related to family.

The findings may be useful to microfinance institutions to strengthen and enlarge their outreach to support and work

for the economic and social development of its rural and urban beneficiaries. Microfinance institutions should conduct periodic meeting with the beneficiaries in order to make them conscious towards the application of loan in business and allied activities.

6. Recommendation

✿ The quantum of loan extended by the Microfinance Institutions to their clients is not sufficient for expansion of existing business or for starting new setup. So it is recommended to policy makers that amount of loan extended to beneficiaries should be sufficient to establish business easily.

✿ In some of the schemes the interest rate ranges between 1.5-2 % per month which is quite high to repay from such micro credit. Hence it is recommended that the rate of interest may be reduced so that it can become affordable to beneficiaries.

✿ Many beneficiaries in the area of the study have started business but have failed to efficiently carry the business because of the lacking of management skill. So it is recommended to Microfinance Institutions that they should develop entrepreneurial skill among beneficiaries.

✿ It is also observed that some clients divert funds from microcredit to some other purposes apart from their main business line. It is a strong reason for the failure of their business and reason behind their non repayment of such raised loans. So they must be guided for effective utilisation of their loan and its proper repayment.

7. Limitation

The present study is an attempt to develop an understanding of the impact of microfinance on social empowerment in the area of study and to evaluate the same based on the parameters drawn from existing literature of microfinance. Since the research is a part of education and a continuous process, the area selected in the study is quite small and performed on limited sample size too. It is also due to the limitation of time and money constraint which forms major limitation of the study. Being descriptive research in nature the area and samples selected for the study can be treated as simple descriptive attempt in the vast literature pool of microfinance. More wide-ranging and empirical studies are essential for confirming and enhancing the results of this study. This study does not include some important aspects related to self help groups like their periodic savings, internal lending, repayment schedule; as sample consists of individuals belong to groups with different maturity periods and also who get direct lending from MFI's. The study can be extended by following more justified sampling techniques like stratified or cluster sampling and also by including large samples from SHGs and non SHGs beneficiaries to improve the effectiveness of the study.

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Perceptual Mapping of Capital Budgeting Techniques: Empirical Evidence from Corporate Enterprises in India

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Abstract :

The study attempts to map practitioner's perception towards varying attributes [incorporation of time value of money (TVM), reflection of all relevant cash flows (RCF), consistency with the goal of shareholders' wealth maximization (WM) and efficient reinvestment of intermediate cash flows (RICF)] of competing capital budgeting techniques. For the purpose, responses have been elicited from CFO/Finance managers of 126 non -financial companies of CNX 200 index. For an in-depth analysis, capital budgeting decisions have been divided in four categories (based on the purpose). Findings indicate that CFO's use both discounted and non-discounted techniques but perceive ARR and payback techniques as the most consistent techniques in context of goal of wealth maximization. It may be mentioned that NPV and IRR emerge as the most preferred techniques. In addition, perceptual map (based on principal component analysis (PCA)) reveals that the practitioners consider most of the features of a sound (conceptually) capital budgeting technique, but somehow are unable to associate the attributes with the relevant technique. The perceived association of goal of wealth maximization with ARR and PBP is the most disappointing finding. In short, the consistency between preference and perception has magnified the theory practice gap. The study is expected to pave path for exploration of more such intriguing aspects related to decision making in financial management.

Key Words:

ARR, Capital Budgeting Techniques, IRR, NPV, Payback Period, Perceptual Mapping

1. Introduction

Examination of the history of capital budgeting theory, from Irving Fisher (1907) to present times reveals a heavy concentration on the progressive development and sophistication of appraising investing options (Pike, 1983). Sound capital investment decisions are critical to the long term success of the firms. There are at least two major reasons for such an affirmation. First is that (long-term) assets are the real earning assets of the business enterprise; these assets enable the firm to generate products/services which result in sales/revenues, which in turn yield profits. The second is that an opportune investment decision can yield spectacular results in terms of profits but an ill- advised and incorrect decision can endanger the very survival of the business firm (Jain et. al 2013).

Capital budgeting process can be described in terms of four stages: 1) identification, 2) development, 3) selection and 4) control; it also refers to the process of determining which investment project results in maximization of shareholders' wealth. The manager, for the purpose of evaluating an investment proposal, may use the following techniques: 1) accounting rate of return (ARR), 2) payback period (PBP), 3) net present value (NPV), 4) internal rate of return (IRR) and profitability (more aptly should be referred to as present value) index (PI). It is worth mentioning here, that development of theory and technique of appraising benefits has run from payback period, through ARR to the presently discounted cash flow methods namely, NPV and IRR.

The literature is rife with evidence as to acceptance of conceptually sound techniques. However, they are not universally observed in practice. Given the strategic nature of capital budgeting decisions and their implication for growth, profitability, and most importantly the survival of the firm, the adoption of theoretically correct and sound evaluation techniques assumes paramount importance. Thus, the study focuses on exploring the preferences of capital budgeting techniques used by Indian corporates. The other objective being, mapping of practitioners' perception towards different capital budgeting techniques. The complexity and turbulence in the business environment is increasing day by day. Also, the financial markets and business practices are going through an overhauling phase. In such a scenario, the examination of theory practice match/mismatch seems imperative. The present study would help in finding the gaps in practice (if any). Also, a novel dimension of perceptual mapping in finance may contribute to the literature. The study is divided into five sections. Section 2 presents a review of literature. Section 3 explains the methodology and concept and use of perceptual map. Section 4 presents the findings and analysis. Section 5 outlines the conclusion.

2. Literature Review

In the 1960s, the capital budgeting studies (Mao, 1970) observed an increasing preference for non-discounted capital budgeting techniques especially the payback period method. In the 1970's the studies (Porwal, 1976), etc. observed an inclination towards the use of discounted cash flow method especially, IRR method. A trend towards incorporation of risk was also indicated by these studies. It was during this time that certain studies focused specifically on the risk aspect of capital budgeting. However, the studies of 1980's (like (Pandey, 1989)noted that payback period method was the most popular followed by IRR Method. Further, sensitivity analysis and conservative forecasts were observed as the most preferred method for evaluation of investment risk. Beginning from the early 1990s, Cherukuri (1996) in the case of large U.S. companies concluded that IRR was the most preferred choice followed by the NPV method. They observed that evaluators used multiple evaluation methods. Similar results were found by Bierman (1993) in a survey of 74 Fortune 100 firms. The use of sophisticated risk analysis techniques like CAPM or monte carlo simulation was very limited due to lack of understanding. It was observed that discounted cash flows (DCF) methods were applied by as many as 75 percent of the respondent companies. Sensitivity analysis and adjustment of discount rate methods were found popular for handling risk. The studies of Jog and Srivastava (1995) and Pike (1983) supported this and noted that payback period method was the most preferred method in companies of Canada and the United Kingdom.

Cherukuri (1996) selected top 300 non-government companies and compared their capital budgeting practices with those of Hong Kong, Malaysia and Singapore. The study revealed that 51 percent of the respondent companies used IRR, 30 percent used NPV and 38 percent and 19 percent respondents used respectively the payback period and ARR methods. About 90 percent of respondent firms used payback period and 59 percent used sensitivity analysis for incorporating risk.

Chadwell et. al (1997) observed that more than 70 percent preferred high IRR and 84 percent NPV as one of the methods in appraising projects. Nearly two-thirds of the firms believe that acceptable project should have shorter payback period in addition to either high IRR or NPV. Stanley (1997) studied the small business firms for evaluating capital budgeting techniques used by them in 1990's and found that payback period (42.7%) was most popular method, followed by ARR (22.4%). However, it was noted that the small business owners have increased their sophistication as over 27 percent used discounted cash flow as the primary method of analysis.

Jain and Kumar (1998) in a study of 96 non-government companies listed on Bombay Stock Exchange in India and 5 companies of South East Asia observed that the most preferred method was payback period method (80% companies) followed by NPV and IRR. For incorporation of risk companies preferred sensitivity analysis followed by higher cut off rate and shorter payback period. However, Kester and Chang's (1999) survey of 226 CEOs from Australia, Hong Kong, Indonesia, Malaysia, Philippines, and Singapore, found that DCF techniques such as NPV/IRR are the most important techniques for project appraisal and sensitivity analysis and scenario analysis for project risk assessment in all these countries The beginning of 2000 was marked by certain ground–breaking landmark studies in the area of capital budgeting.

Graham and Harvey's (2002) survey of 392 CFOs revealed that the firms which are large, with high debt ratios, having CEOs with MBA are by and large more likely to use DCF techniques like NPV and IRR than their counterparts. Similarly, large firms are more likely to use risk-adjusted discount rate while small firms prefer monte carlo simulation for risk adjustment. Similar results were observed by (Ryan & Ryan, 2002) in a study of Fortune 1000 companies. They observed NPV was most popular technique followed closely by IRR. A contemporary study by Holmen (2005) of capital budgeting techniques used for FDI's by Swedish firms also reaffirmed the findings of earlier studies of 2000. The study indicated that larger firms are more likely to use NPV method or IRR method than small firms. As per the survey, payback method was the most preferred capital budgeting technique, used by nearly 79 percent of the sampled units.

Truong et. al (2005), in a survey of capital budgeting practices of Australian listed companies observed that NPV, IRR and payback were the most popular project evaluation techniques. It was also found that real options techniques have gained a foothold in capital budgeting but are not yet part of the mainstream. In another study, Brijlal (2008) investigated a number of variables and associations relating to capital budgeting practices in small, medium and large businesses in the Western Cape Province of South Africa. The results revealed that payback period, followed by NPV, is preferred across different sizes and sectors of business. Moreover, 64 percent of businesses surveyed used only one technique, while 32 percent used two to three different types of capital budgeting techniques. The large businesses favored IRR and NPV more as compared to that of small businesses and more than two-thirds of businesses used non-quantitative techniques to consider risk while investing in fixed assets.

3. Sample and Methodology

i. To ascertain the preference for various capital budgeting techniques.

ii. To map the perception of practitioners towards attributes of different capital budgeting techniques.

To gain an insight about the fit between the said theory and practice in context of Indian corporates, a survey was conducted. The survey attempts to gather information regarding capital budgeting techniques used by Indian corporates. A questionnaire was administered to 154 non-financial companies of CNX 200 index. A total of 34 (22%) responses were received, which, given the timeframe and as compared to other similar studies may be considered as satisfactory response rate. The information on finance is generally considered very sensitive and firms, in general, are reluctant to share much information. The responses were sought on four dimensions of investments based on its purpose, namely 1) investment in existing line of business, 2) investment in other areas, 3) technology up-gradation and 4) ' replacement of machinery. Further, the practitioners were asked to rank the techniques (in order of preference, 1 being "most preferred and 5 being "least preferred") for each of the purpose.

With the objective of delving into the minds of practitioners , the questionnaire sought the opinion/ perception practitioners towards various attributes, of capital budgeting techniques, as enunciated in theory (text books).The different techniques are often differentiated on the basis of 1) incorporation of time value of money (TVM), 2) reflection of all relevant cash flows (RCF), 3) consistency with the goal of shareholders' wealth maximization (WM) and 4) efficient reinvestment of intermediate cash flows (RICF). The respondents were required to state whether they "strongly agree", "agree," "can't say", "disagree" or "strongly disagree" with each of

the abovementioned attributes in context of each of the technique.The rationale for considering competing techniques as products lies in literature. The preference and usage of techniques differ from those considered sound in theory. The continuing debate as to which is the best technique has led to modification of many traditional techniques. *The map may help in identifying spaces where novel techniques could fit in*. To this end, we collected the responses and entered them in SPSS for Factor analysis.

The basic "factor model" is

$X=\xi\Lambda'+U,$ (Eq.1)

where X= [xij] nXp is the rating of technique i on question j, ξ= [xif] nXk is technique i's score on factor f, Λ= [lfj] pXk is the loading of factor f onto question j, and U= [uij] nXp is a specific error. The k-dimensional factor score vector (ξi1,..ξik) is the location of technique i on the perceptual map, where each factor is one of the basic attributes. The k-dimensional factor loading vector (λ1j,..λkj) tells the correlation of question j with the k factors, bothξ and Λ are unobserved. That is, we have to infer both the values of the independent variables and the coefficients Λ' from the manifest dependent variable rating X.

4. Findings and Analysis

The responses of questionnaire are summarized in Table 1.

Table 1: Order of preference for capital budgeting techniques

	Capital budgeting techniques	For investment in existing line of business	For new investment in other areas	For technology up gradation	For replacement of machinery
Most preferred technique (%)	ARR	2.94	8.82	17.65	14.71
	PBP	5.88	8.82	11.76	17.65
	NPV	29.41	23.53	26.47	26.47
	IRR	38.24	35.29	23.53	23.53
	PI	17.65	20.59	17.65	14.71
Second most preferred technique (%)	ARR	11.76	0.00	5.88	2.94
	PB	2.94	5.88	5.88	5.88
	NPV	17.65	8.82	11.76	11.76
	IRR	11.76	26.47	20.59	14.71
	PI	2.94	5.88	2.94	5.88
Third most preferred technique (%)	ARR	2.94	11.76	2.94	5.88
	PBP	14.71	2.94	5.88	5.88
	NPV	8.82	8.82	2.94	2.94
	IRR	5.88	2.94	5.88	2.94
	PI	5.88	0.00	14.71	2.94

	Capital budgeting techniques	For investment in existing line of business	For new investment in other areas	For technology up gradation	For replacement of machinery
Fourth most preferred technique (%)	ARR	5.88	2.94	2.94	0.00
	PBP	5.88	2.94	2.94	2.94
	NPV	2.94	0.00	2.94	0.00
	IRR	0.00	0.00	0.00	0.00
	PI	8.82	5.88	2.94	8.82
Least prefer techniques (%)	ARR	8.82	5.88	2.94	5.88
	PBP	2.94	0.00	5.88	0.00
	NPV	2.94	2.94	2.94	5.88
	IRR	2.94	0.00	0.00	0.00
	PI	2.94	2.94	0.00	0.00

It is heartening to note that all the respondent companies used both, discounted and non-discounted cash-flow techniques to evaluate capital expenditure. This is in conformity with the findings of Jain et. al (2013). However, this is in contrast to findings of Jain and Yadav (2005) study of public sector enterprises in India, where 17% did not use discounted cash flow techniques and also to that of Jain and Kumar (1997) where nearly one-fifth of the sample companies used only traditional methods. The finding shows growing professionalism in financial decision making.

As per Table 1, NPV and IRR emerge as the most preferred techniques across all four dimensions. IRR outranks NPV when making new investment in - existing line of business (38.24 % IRR and 29.41% NPV) and other areas (35.29% IRR and 23.53% NPV). On the other hand when investing for technology up-gradation (26.47% NPV and 23.53% IRR) or replacement of machinery (26.47% NPV and 23.53% IRR), respondents preferring NPV outnumber those going for IRR. The situation for the second spot is more or less on the similar lines. It may be noted that IRR outranks NPV in the case of new investments which is not in conformity with the theory, which considers NPV as superior method to IRR. The reason for this contradiction is perhaps the ease of comparison with the cost of capital. The margin of all possible IRRs over the cost of capital is the only components of NPV (Osborne, 2010). Surprisingly, the second least preferred technique is PI, which in essence is an extension of NPV. As hoped the least preferred technique is ARR. Though, the responses seem to be in conformity with the existing literature, the reasons for preference for IRR, despite its shortcomings, remain a puzzle.

Further, in recent years a number of authors have questioned the importance of capital budgeting techniques and have drawn attention to the related aspects of the investment decision process such as managerial behavior. Also, considering the capital budgeting system as a unit of analysis, theory suggests that resource allocation efficiency is not merely a matter of adopting sophisticated, theoretically sound investment procedures and techniques. Lorange and Morton (1974) identified three variables, namely, manager style (e.g.: attitude to risk, resolving conflicts, decision making etc.), degree of professionalism and the history of organization affecting the capital budgeting decisions. In view of this we may perhaps assert that perception drives practice.

As mentioned earlier that with the objective of delving into the minds of practitioners , the questionnaire sought the opinion/ perception practitioners towards various attributes, of capital budgeting techniques, as enunciated in theory (text

books);different techniques are often differentiated on the basis of 1) incorporation of time value of money (TVM), 2) reflection of all relevant cash flows (RCF), 3) consistency with the goal of shareholders' wealth maximization (WM) and 4) efficient reinvestment of intermediate cash flows (RICF). The respondents were required to state whether they "strongly agree", "agree," "can't say", "disagree" or "strongly disagree" with each of the abovementioned attributes in context of each technique.The correlation between respondents' answers and different questions is presented in Table 2.

Table .2: Correlation matrix

		TVM	RCF	WM	RICF
Correlation	TVM	1.00	0.98	-0.91	0.97
	RCF	0.98	1.00	-0.85	0.97
	WM	-0.91	-0.85	1.00	-0.86
	RICF	0.97	0.97	-0.86	1.00

A high correlation can be observed among TVM, RCF and RICF. To find correlations between factors and questions, factor loadings have been computed, as show in Table 3.

Table 3: Summary of PCA

Descriptive Statistics			Component Matrixa	
	Mean	Std. Deviation	1	2
TVM	103.20	33.61	0.99	0.04
RCF	110.00	24.51	0.98	0.16
WM	44.60	44.68	-0.93	0.37
RICF	104.20	21.86	0.98	0.15
Extraction method: Principal component analysis.				
a. 2 components extracted.				

The fact that the ratings for questions on TVM, RCF, and RICF are heavily loaded on the first factor suggests that, indeed, there is a common attribute that is driving the answers to these three questions. The factor 1 might be called "*cash flow related*." The second factor is most heavily loaded on "WM" so we might interpret this perceptual dimension as a "*goal orientation*" factor .After parsing the factor loadings from correlation matrix, the amount of perceptual attribute for each technique can be judged from factor scores, as shown in Table 4.

Table 4: Total variance explained

Component	Extraction Sums of Squared Loadings	
	Total	% of Variance
1	3.77	94.32
2	0.19	4.65
Extraction method: principal component analysis.		

The square of the correlations indicates the proportion of the variation in the answers to the questions accounted for by the factors. Hence, cash flow related factor accounts for 94.32% of all the variance in the answers. Whereas, factor-goal orientation accounts for only 4.65% of all the variance, as shown in Table 5.

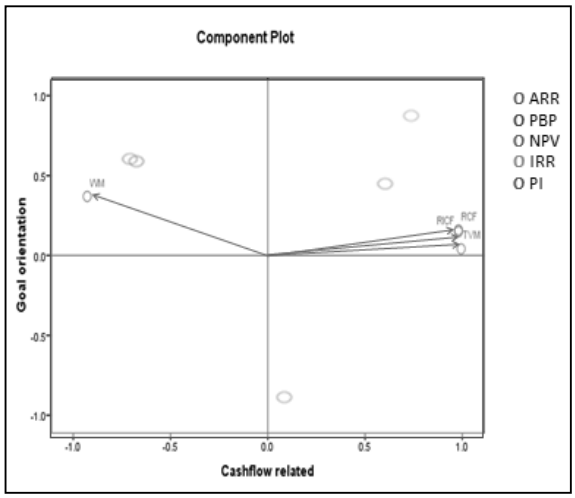
Table 5: Component score coefficient matrix

	Component	
	1	2
TVM	0.26	0.22
RCF	0.26	0.86
WM	-0.25	1.99
RICF	0.26	0.80

Extraction method: Principal component analysis.

The two –dimensional graph has been presented as shown in Figure 1:

Fig1: Perceptual map of capital budgeting techniques



The map depicts three attributes namely, time value of money (TVM), relevant cash flows (RCF) and reinvestment of cash flows (RICF) as one factor. Apparently, the CFOs perceive IRR to be heavily loaded with these ideal (as enunciated in current literature) characteristics (of a technique). This perception culminates into their preference for IRR (in practice). Surprisingly, they believe that IRR is not consistent with the goal of maximization of shareholders' wealth.

NPV closely follows IRR on both the factors. This is in tune with the responses of the questionnaire. Though the CFOs consider most of the features of sound capital budgeting technique, they seem to be unable to associate them with the appropriate one.

Most respondents are not sure whether PI incorporates the attributes that compose factor 1. Also, they are of the opinion that PI is inconsistent with the goal of maximization of shareholders' wealth. It is heartening to note that, practitioners do not associate factor 1 with ARR and PBP. This finding corresponds with the responses of questionnaire, where ARR and PBP are among the least preferred techniques. But, much to our disbelief CFOs perceive these techniques as most consistent with the goal of wealth maximization.

5. Concluding Observations

It is gratifying to note that all the respondent companies used discounted as well as non- discounted techniques. Further, NPV and IRR emerge as the most preferred capital budgeting techniques, PI being the least preferred.

In addition, perceptual map reveals that the practitioners consider most of the features of a sound capital budgeting technique, but somehow are unable to associate the attributes with the relevant one. The perceived association of goal of wealth maximization with ARR and PBP is the most disappointing finding. In short, the surprising consistency between preference and perception has magnified the theory practice gap. A deeper probing of opinions and beliefs seem to have the potential to more startling findings.

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Perception Study of Clients towards Products and Services Delivered by MFIs – A Study with Reference to Select Districts of West Bengal

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Ashish Kumar Sana

Abstract:

Indian Microfinance Institutions (MFIs) used to provide credit plus services i.e. micro-insurance, health services, money remittance, training and capacity building services, etc. along with formal credit products. The main objective of the study is to examine the nature of products and services availed by the clients in select districts of West Bengal and the client's perception regarding the MFI's services. For this purpose, direct interview have been conducted through a structured questionnaire with 485 clients of seven MFIs over ten districts of West Bengal. The study found that all of the respondents have availed loan ranges from one to ten times from the MFIs in which they are members. Majority of the loans taken by women have been utilized for their husband's business. None of the clients visited in the survey have availed health loan, education loan, consumption loan, emergency loan and housing loan. So, the MFIs have a huge scope for improvement regarding health, education, financial literacy programme and insurance services.

Key Words:

Microfinance, Microfinance Institutions, Clients, Women, Loans, Insurance, Services

1. Introduction

Initially the term 'microcredit' was used in the sector as credit was the only product of the Microfinance Institutions (MFIs). But gradually the word 'microcredit' has been replaced by 'microfinance' as it included other services like insurance, remittances, savings, education and health loan, etc. Only credit could not provide full empowerment to the poor women as most of these women are lacking of general financial awareness, formal education and are disadvantaged section of the society. So, the MFIs used to deliver various non-financial services like business development services, health, education, financial literacy, etc

2. Brief Review of Literature

Panda (2009)[1] made an elaborate study on different aspects of microfinance in India. His study covers the conceptual issues, evolution, regulatory framework and lending methodology of microfinance programme in India. He also deals with risk involved and marketing strategy of MFIs. He identified that the product demand is different across various segments, various geographical areas and changes over time period. MFIs develop products as they want to reach more people and thereby increase their market share.

Chowbey and Sharma (2010)[2] made a thorough study on the cost structure and other complexities faced by the small MFIs in Bihar. They found that maximum of the MFIs in Bihar are

charging flat rate of interest varying between 12-18% p.a. They also found that the processing fees, service charges, non-interest bearing cash security along with flat interest rate have made the real cost of lending non-transparent and exorbitant.

Sa-Dhan (The Association of Community Development Finance Institutions) (2012)[3] prepared and presented the summarised data of 184 MFIs state- wise, legal form-wise, district-wise, region-wise and organisation-wise in a very useful manner. The report covers MFIs wise loan disbursement, numbers of clients, service delivered and other related information. Puhazhendhi (2013)[4] has outlined the recent trend and scenario of Indian microfinance sector. He pointed out that a number of MFIs are providing other products and services such as savings, micro insurance, micro pension, health & housing loans, loans for water supply & sanitation etc. He also found that MFIs in India have historically displayed mixed enthusiasm in experimenting with new products on account of their own imperatives as well as regulatory limitations. While many of the products showed the success for replication, there are several unresolved issues which need to be appropriately considered while up scaling these innovations. Sa-Dhan (2015)[5] has made a detailed study on the different products and serviced delivered by the Indian MFIs. The study found that a number of MFIs are providing various services like micro-insurance, micro-pension and other development services like financial literacy, livelihood promotion, capacity building, etc.

From the above literature review, it appears that over the years, various attempts have been made by the researchers to evaluate the different aspects of MFIs. But no seminal work so far has been made on the analysis of perception of clients towards products and services delivered by MFIs. So, the present study is trying to highlight these unexplored areas.

3. Objectives of the Study

The objectives of study are:

(i) To analyse the different products and services delivered by the Indian MFIs.

(ii) To examine the types of products and services availed by the clients in select districts of West Bengal and their perception regarding the MFI's services.

4. Database and Methodology

The study is both exploratory and empirical in nature. The explorative part of the study is based on the existing literature on the subject including books, journals, articles, reports, etc. The empirical analysis has been done on the basis of primary data which have been collected through field survey with the clients of the MFIs within the period of February, 2014 to January 2015.

The primary data have been collected through a structured questionnaire. Non-probabilistic convenience sampling techniques have been used to select clients of selected districts. Finally 485 clients have been surveyed from 10 (ten) districts of West Bengal, namely Darjeeling, Malda, Bankura, Howrah, Hooghly, Burdwan, South 24 Parganas, North 24 Parganas, Nadia and Kolkata. We have also tried to consider at least 30 clients from each MFI and at least 30 clients from each District.

The client's questionnaires have been filled up through field visit with a structured questionnaire from 7 MFIs namely Arohan, Bandhan, Sarala, Sahara, VSSU, Destiny and Anjali over 10 districts of West Bengal. Simple percentages, cross tabulation, bar chart, and Chi-Square test have been used to present and interpret the data.

5. Types of Products and Services offered by the MFIs

The Indian MFIs that began the journey as a single credit product programme have now moved into a different realm with MFIs trying to understand their client's financial needs in a more meaningful way and designing products to suit these needs with the scope of regulatory restrictions. The period 2005-10 witnessed an intense growth at the cost of innovation as it was easier to increase outreach with a standard product. Further, the regulatory framework did not permit broadening the range to savings and other services like remittances. The MFIs are now providing credit plus services i.e. they are providing micro-insurance, health services, money

remittance services, training and capacity building services etc. along with formal credit products. Main products and services that are offered by the Indian MFIs are summarized below.

5.1 Credit Services

The concept of MFIs was basically based on credit or loan services for the poor people. Generally the MFIs commenced their loan disbursement with minimal amount and gradually on the basis of good repayment of the borrowers the amount increased in subsequent loans. The total number of clients served by MFIs stood at 371 lakh as on 31st March, 2015. Majority of these clients are being served by NBFC-MFIs (85.18%), primarily the larger ones. MFIs with outstanding portfolio above Rs. 500 crore are responsible for reaching out to 82.21% of the clients in the industry.[6] The features of credit or loan services of the MFIs are as follows:

- The loans are generally collateral free.
- Disbursement of loan and collection of instalment amount are made at doorstep of the clients.
- The interest rate of loan ranges from 19-26%.
- The borrowers are mainly women.
- Normally the loan repayments rates are more than 95%.

5.2 Micro Insurance

Microinsurance, commonly called as insurance for the poor is referred as the provision of insurance services to low-income households, which serves as an important tool to reduce risks for the vulnerable population. Micro-insurance aims at providing both general and life cover to the insured with an assured sum of Rs. 50,000 or less. India is among the few countries to draft and implement specific micro-insurance regulations. The Rural and Social Sector Obligation (2002) and the Microinsurance Regulation (2005) have helped the growth of regulated micro-insurance in India. The individual new business premium under the micro insurance segment in the year 2015 stood at Rs. 95.65 crore for 27.67 lakh new policies, the group business premium amounted to Rs. 141.77 crore covering 1.32 crore lives.[7]

The MFIs used to sell the micro-insurance products after collaborating with the insurance companies. The MFIs in India provides micro-insurance like life insurance, credit life insurance, cattle insurance, rainfall insurance etc. Maximum of the MFIs provide credit life insurance which is again compulsory insurance for the borrowers. The MFIs like Arohan, Equitas, Hand in Hand, etc. used to provide micro-insurance for health and MFIs like Adhikar, Basix, Grameen Koota, Vivekananda Sevakendra –O- Sishu Uddayan (VSSU), etc. used to provide micro-insurance for life.

5.3 Micro Pension

Apart from compulsory pension schemes of employers, few voluntary pension schemes have popular support. Among the microfinance clients, the need for pensions is clearly felt and expressed. India Invest Micro Pension Services (IIMPS) has partnered with BASIX and SEWA Bank for covering 7,00,000 working poor in 15 states of India. The large footprint pension schemes are UTI Micropension scheme with over 1.25 lakh subscribers, promoted through BASIX, SHGs and other community based groups. The Society for Elimination of Rural Poverty (SERP) –Life Insurance Corporation partnered micro-pension scheme has covered over 3.7 lakh women members of SHGs as of April 2010.[8] In West Bengal, Bandhan have started pension services through the New Pension Scheme (NPS) of Government of India. Arohan's micro-pension schemes are managed by UTI Retirement Benefit Pension Fund (RBTF) and Life Insurance Corporation of India (LICI) for investment sizes as small as Rs. 100 per month.

5.4 Savings

The service in savings is fundamental to sustainable economic development. Access to savings and deposits enables households to smoothen the consumption of uneven income flows, accumulate assets for the future, invest in improved human capital and be better prepared for unexpected emergencies. Indian MFIs which are registered as Society, Trust, Section 25 Companies & NBFC are not eligible to collect deposit or savings from their client as per the current regulation. Only the MFIs registered as Co-operative are

permitted to do the same. In West Bengal, Bagnan Mahila Bikash Cooperative Credit Society Ltd. (BMBC) & VSSU are collecting savings from their clients or members. MFIs such as SEWA Bank, which promotes savings groups, provide the poor a safe place to save.

5.5 Money Remittance

Many of the larger MFIs are now establishing multi-state operations. There is substantial migration within states, and large state-wide MFIs might become interested in providing a remittance service to borrowers in different locations. Adhikar based on Bhubaneswar, Orissa has the potential advantage that it offers loans to members, both in Gujarat and in Orissa, as well as insurance. Thus it enjoys the advantage of economies of scope over informal competitors. MFIs like Bandhan have started this service in West Bengal in collaboration with the Western Union Money Transfer. In Assam, Rashtriya Gramin Vikas Nidhi (RGVN) based on Guwahati is planning to introduce remittances as a service to its approximately 35,000 Credit and Savings Programme members spread over 10 districts of the state.[9]

5.6 Sanitation Loan by MFIs

Globally, lack of access to hygienic sanitation facilities causes 2.7 million deaths annually, and 0.8 million children die of diarrheal disease every year.[10] Over 1 billion people (15% of total population) still defecating in the open.[11] The issue is more acute in developing countries such as India. Of all people in the world defecate in the open, a majority i.e. 600 million live in India which is more than 50% of the country's population. According to the Census of India (2011), 67% of rural household (and 53% of all Indian households) still do not have access to proper sanitation facilities.[12]

In India, very few MFIs are providing this service. Gurdian, a water and sanitation-focused MFI set up in 2007 in Tamil Nadu is one of them. It provides loans via Joint Liability Group for installing new household water connection or toilet. Since 2007, Gurdian has expanded from 1 to 4 districts in Tamil Nadu and has given out 25,000 loans for toilets ranges from Rs. 5,000 for renovating and Rs. 10,000 for constructing new toilet. Hand in Hand, an NGO headquartered in Tamil Nadu has an MFI arm through which it has been lending for sanitation since 2005, with sanitation loan accounting for 6-7% of its loan portfolio. It has provided loans for 8,000 toilets so far, including 3,000 in rural areas and 500 in urban areas. Sanghamithra Rural Financial Services started sanitation financing in rural Ooty in 2010. It has financed 1,700 toilets up to September, 2013 across several districts of Karnataka, providing loans of Rs. 10,000-15,000 at 18% interest.[13] Bandhan Financial Services Pvt. Ltd is also providing sanitation loan up to Rs. 10,000 in West Bengal since 2012.

5.7 Housing Microfinance

Housing microfinance consists mainly of loans to low-income people for renovation or expansion of an existing home, construction of a new home, land acquisition, and basic infrastructure (e.g., hooking up to city sewage lines). In India, National Hosing Bank (NHB) has recognized the penetration of Housing MFIs as delivery mechanism for channelizing the housing finance to the un-served section of the society. Cumulatively, till June 30, 2013, the Bank has sanctioned loan amount to Rs. 101.68 crore to 32 MFIs for financing 40,210 urban and rural housing unit.[14] Sanghamithra Rural Financial Services (SRFS) a MFI promoted by MYRADA and operates in three states Karnataka, Tamilnadu and Andhra Pradesh has ventured into housing microfinance in 2004. In its housing microfinance programme, any SHG group comprise 15-20 women, if qualifies, will receive Rs. 30,000 to 50,000 per member for three years loan repayment terms. Gujarat Mahila Housing SEWA Trust had also recently started a housing mortgage loan where loans were extended to members for a period ranging from 5-15 years and the amount ranged upto a maximum of Rs. 5 lakh.

5.8 Training and Capacity Building

To provide the MFIs service more effectively and efficiently both of the clients/members and the staff of the MFIs required training and capacity building programme. So, many MFIs use to provide training for developing the skill of the clients so that the client can do their entrepreneur activities smoothly. MFIs like Village Financial Service Pvt. Ltd. (VFSPL) provide training on zari works. Along with these many MFIs provide financial literacy camps for enriching the poor clients about the financial transactions and financial decisions.

5.9 Financial Literacy and Financial Inclusion

MFIs play a significant role in facilitating inclusion, as they are uniquely positioned in reaching out to the rural poor. Many of them operate in a limited geographical area, have a greater understanding of the issues specific to the rural poor, enjoy greater acceptability amongst the rural poor and have flexibility in operations providing a level of comfort to their clients. MFIs used to provide financial literacy training to the clients through their loan officer in the weekly collection meeting or by organizing special camps. Table-1 provides a snapshot of the developmental activities taken by different types of MFIs in India.

Table-1: Snapshot of Areas of Developmental Activities Undertaken by Indian MFIs across Legal form during 2011-12[15]

MFIs	Livelihood	Housing	Health	Education	Capacity Building
Society and Trust	Small trading, Petty business, Small Enterprise, Client Awareness Training	Solar energy, Housing, Repair	AIDS & Sanitation, Health Camps, Eye camps, Urban Health centre	Creche, Distribution of books & stationary, Primary school, Financial literacy	Training, Entrepreneurship development, Financial literacy, HR Training
Section 25 Companies	Agriculture & Dairy, Marketing, Training	Affordable housing, Water & Sanitation	Community health care camps & Sanitation	Education programme, Stationary	Leadership & Training, SHG Liinkage, Dry Flower Cluster
Co-operatives	Agriculture & Animal husbandry, Awareness & Training	Micro housing	Awareness	Annapurna Mahila Mondal, Awareness and Camps	Training, Cattle Health Camps
NBFCs	Micro-enterprise, Training, Financial support for Physically handicapped, Jewellery, Marketing	Rehabilitation, Renovation & Construction, Cooking stove loan	Camps, Health education & Training, Medicine distribution, self-development, Medical Insurance	Financial literacy, Self-development & training	Capacity building & training, Dairy & Financial literacy

(Source: The Bharat Microfinance Quick Report, 2012)

6. Analysis of Perception regarding Products & Services availed by the Respondents

In this section, we have tried to examine the products and services actually availed by the clients of the MFIs. We have also tried to evaluate the perception of the clients regarding the MFI's products and services. For this purpose, direct interview have been conducted through a structured questionnaire with 485 clients of seven MFIs over ten districts of West Bengal. The survey covers 455 female clients and only 30 male clients. All the male clients are from the MFI Arohan. The major findings of the survey have been summarized below:

6.1 Loan Products availed by the Clients

(i) Number of Loans availed

All of the respondents have availed loan from the MFIs in which they are members. The number of loan ranges from 1 to 10 times. Majority of the respondents are new borrowers

with 1-2 times loan (44.1%), followed by 3-4 times (37.9%). Table-2 highlights the number of loan availed by the respondents.

Table-2: No of Loans Availed by the Respondents

MFI Name	No of Loans					Total
	1-2 times	3-4 times	5-6 times	7-8 times	Above 8 times	
Bandhan	57	67	47	20	4	195
Arohan	58	52	9	0	1	120
Destiny	6	24	0	0	0	30
Anjali	45	0	0	0	0	45
Sahara	15	11	4	0	0	30
VSSU	19	16	0	0	0	35
Sarala	14	14	2	0	0	30
Total	**214**	**184**	**62**	**20**	**5**	**485**
Percentage	**44.1**	**37.9**	**12.8**	**4.1**	**1.0**	**100.0**

(Source: Filed Survey by the researcher)

Bandhan and Arohan are the long-term player in the market as they have disbursed loan over 7 times to their clients. It has been found that the clients normally use to apply for the new loan after repaying the old one for continious supply of working capital in their income generating activities or for expansion of existing economic activities.

(ii) Amount of Loan

The amount of MFI's loan ranges from as low as Rs. 1,000 to maximum of Rs. 50,000 depending on the need and capacity of the borrowers. 52.8% of the last loan received by the clients ranges from Rs. 5,001 to Rs. 10,000 followed by 36.3% loan ranges from Rs. 10,000 to Rs. 15,000. The Exhibit-1 and Table-3 below presents the percentage share of loan amount.

Exhibit-1: Amount of Last Loan Received by the Clients

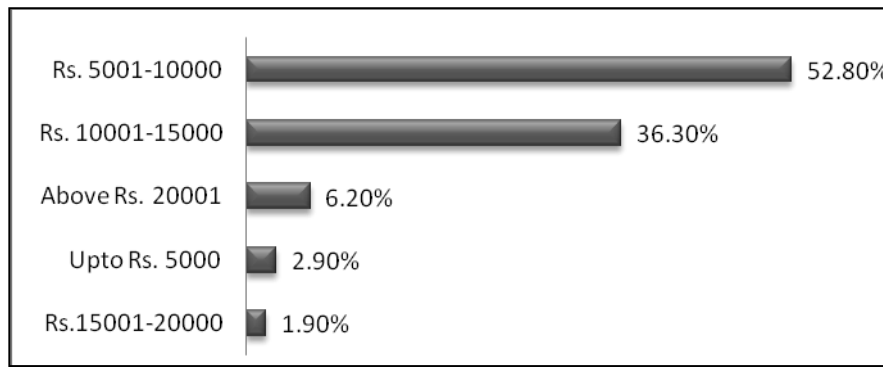


Table-3: Amount of Last Loan Received by the Clients

MFI name		Amounts of Last Loan					Total
		Upto 5000	5001-10000	10001-15000	15001-20000	Above 20001	
Bandhan	No.	7	57	92	9	30	195
	% within MFI name	3.6%	29.2%	47.2%	4.6%	15.4%	100.0%
Arohan	No.	1	92	27	0	0	120
	% within MFI name	.8%	76.7%	22.5%	.0%	.0%	100.0%
Destiny	No.	0	13	17	0	0	30
	% within MFI name	.0%	43.3%	56.7%	.0%	.0%	100.0%
Anjali	No.	1	27	17	0	0	45
	% within MFI name	2.2%	60.0%	37.8%	.0%	.0%	100.0%
Sahara	No.	1	9	20	0	0	30
	% within MFI name	3.3%	30.0%	66.7%	.0%	.0%	100.0%
VSSU	No.	3	30	2	0	0	35
	% within MFI name	8.6%	85.7%	5.7%	.0%	.0%	100.0%
Sarala	No.	1	28	1	0	0	30
	% within MFI name	3.3%	93.3%	3.3%	.0%	.0%	100.0%
Total Percentage	No.	14	256	176	9	30	485
	% within MFI name	2.9%	52.8%	36.3%	1.9%	6.2%	100.0%

(Source: Filed Survey by the researcher)

If we consider MFI-wise loan disbursement, it is found that maximum of the loans sanctioned by Bandhan, Destiny and Sahara are ranges from Rs. 10,000 –Rs.15,000. Again for higher amount of loan i.e. above Rs 15,000 where minimum repayment period is 2 years as per the RBI norms, Bandhan is the only player who offers this loan. All of the 9 loans of Rs 15,001-Rs. 20,000 and 30 loans of above Rs 20,001 have been provided by Bandhan. For other MFIs like Arohan, Anjali, Sarala and VSSU, most of the loan amount ranges from Rs. 5,001 to Rs. 10,000.

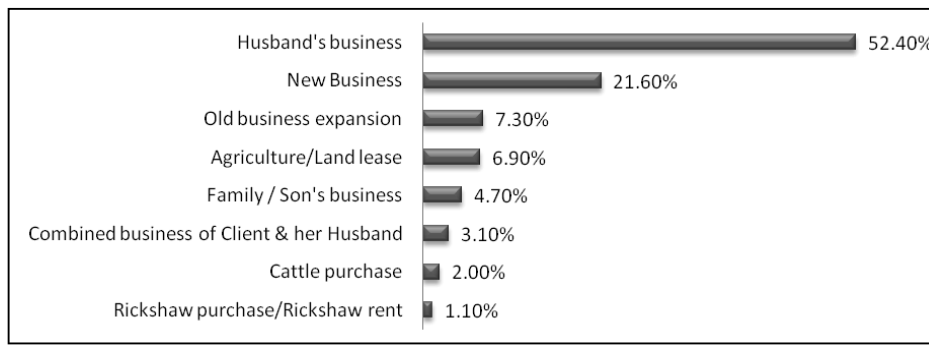
(iii) Utilization of Loans

Generally in microfinance loans are provided to start income generating activities by the women with the motive to empower them. However, the following Table-4 and Exhibit-2 show the actual utilization of the loan taken by the clients.

Table 4: Gender-wise Utilization of loan by the Respondents

Utilization of loan			Gender of the Respondent		Total
			Female	Male	
	New business	No.	97	1	98
		% within Gender of the Respondent	21.6%	2.9%	20.2%
	Family / Son's business	No.	21	0	21
		% within Gender of the espondent	4.7%	.0%	4.3%
	House Building / Asset purchase	No.	1	0	1
		% within Gender of the espondent	.2%	.0%	.2%
	Treatment of Husband	No.	1	0	1
		% within Gender of the Respondent	.2%	.0%	.2%
	Ornaments/ Utensils/ Furniture purchase	No.	1	0	1
		% within Gender of the Respondent	.2%	.0%	.2%
	Old Business Expansion	No.	33	**34**	67
		% within Gender of the Respondent	7.3%	**97.1%**	13.8%
	Children Education	No.	1	0	1
		% within Gender of the Respondent	.2%	.0%	.2%
	Husband's Business	No.	**236**	0	236
		% within Gender of the Respondent	**52.4%**	.0%	48.7%
	Combined business of Client & her Husband	No.	14	0	14
		% within Gender of the Respondent	3.1%	.0%	2.9%
	Cattle purchase	No.	9	0	9
		% within Gender of the Respondent	2.0%	.0%	1.9%
	Rickshaw purchase/Rickshaw rent	No.	5	0	5
		% within Gender of the Respondent	1.1%	.0%	1.0%
	Agriculture/Land lease	No.	31	0	31
		% within Gender of the Respondent	6.9%	.0%	6.4%
Total		No	450	35	485
		% within Gender of the Respondent	100.0%	100.0%	100.0%

Exhibit- 2: Utilization of Loans Taken by Female Members (Major Utilization only)



(Source: Filed Survey by the researcher)

The study found that more than half (52.4%) of the loan taken by women have been used for their husband's business. In maximum cases, women became the intermediary between the MFIs and their husband to get the loan. Again 4.7% loans to women have been used for their family or son's business.

Only 21.6% of the loan has been used by the women to start new business and 7.30% of the loans are invested for expansion of their old business. A very few of the loans have been utilized for purchasing of cattle, assets, furniture, rickshaw or for children's education or for treatment of family members. The above Table and Exhibit clearly show that 97% of the loans taken by male clients have been used for expansion of old business and only one loan have been utilized for starting new business.

(iv) Loan Processing Time

Loan processing time is an important issue as the clients want a new loan just after repaying the existing one. Normally the MFIs took 15 days time to sanction a loan to an existing customer. But the Andhra Pradesh (2010) crisis has changed the scenario. Maximum of the MFIs have faced tremendous liquidity crisis and MFI like Anjali has not been able to lend to their clients for continuous six months. This sub-parameter tries to examine the fastness of the loan process. Table- 5 shows the time taken in processing loan by the MFIs.

Table -5: Time Taken in Processing Loan by the MFIs

MFI Name	Fastness of the Loan Process					Total
	Very fast	Fast	Neither fast nor slow	Slow	Very slow	
Bandhan	112	44	39	0	0	195
Arohan	1	40	70	9	0	120
Destiny	19	7	2	2	0	30
Anjali	0	0	0	0	45	45
Sahara	0	3	26	1	0	30
VSSU	0	14	21	0	0	35
Sarala	1	7	22	0	0	30
Total	133	115	180	12	45	485
Percentage	**27.4**	**23.7**	**37.1**	**2.5**	**9.3**	**100.0**

(Source: Filed Survey by the researcher)

The above Table shows that maximum respondents (37.1%) said that the loan processing is 'neither fast nor slow'. Considering the individual MFIs, most of Bandhan and Destiny's clients used to get loans through a very fast process. Most of the Arohan, Sahara, VSSU and Sarala's clients stated that the loan process is 'neither fast nor slow'.

6.2 Other Loan Products availed by the Clients

(i) Water & Sanitation Loan

Under this scheme, loans are given to the clients for making Pacca Latrine in their house. Only 5 of the clients surveyed have availed 'Water & Sanitation Loan' and all of them are members of Bandhan. Amount of the loan is Rs. 10,000 per member. VSSU used to provide sanitation loan but none of the clients surveyed have availed such loan.

(ii)Health Loan, Education Loan, Consumption Loan, Emergency Loan, Housing Loan

None of the respondents have availed health loan, education loan, consumption loan, emergency loan and housing loan.

6.3 Services availed by the Clients

(i) Micro-Insurance

Various types of micro-insurance products are available in Indian microfinance sector. But in West Bengal, the MFIs use to provide only 'credit life insurance' and 'life insurance'.

✦ Credit Life Insurance

93.81% of the clients are insured under "Credit Life Insurance". This insurance covers the accidental or natural death of the clients or her/his spouse within the loan period and the amount covered is up to the loan amount. The premium of the insurance is taken once at the time of disbursement of loan. Arohan does not provide any insurance for its male clients.

✦ Life Insurance

Arohan have recently started to provide life insurance for economically under-privileged people in collaborating with SBI Life. None of the respondents have received life insurance from the surveyed MFIs.

(ii) Micro Pension

Two MFIs have started micro-pension services for its clients in selective districts. Only eight clients have availed micro-pension from Bandhan in Baruipur branch of South 24 Parganas district. No clients of Arohan have found to be micro-pension holder as the MFI has started this service after completion of our field survey.

(iii) Financial Awareness

Maximum of the MFIs used to provide discussion session regarding financial awareness with their clients before sanctioning or at the time of sanctioning loan. This discussion mainly includes the information about the loan i.e. loan amount, installment, repayment period, interest rate, insurance charges etc. The survey has not been found any special training programme provided by the MFIs for generating awareness among the clients regarding use of money, cash management etc.

(iv) Savings

Only VSSU provides the saving services to their clients. They have five types of deposit scheme namely Daily Deposit (DD), Weekly Deposit (WD), Monthly Deposit (RD), One Time Deposit (FD) and Monthly Income Scheme (MIS). The minimum deposit for the DD is as low as Rs. 10 and for WD it is Rs. 20 and for RD it is Rs. 50 only. Only 5 of the clients visited have deposited in VSSU's saving scheme.

(v) Money Remittances

Only Bandhan used to provide this service but none of the clients visited have used this service.

6.4 Overall Benefits to the Clients

We have tried to examine the overall benefits of the clients from the MFIs products and services through a five point Likert scale. The findings of the MFI-wise overall benefits of the respondents are presented in Table-6.

Table 6: MFI-wise Overall Benefits of the Respondents

MFI name			Overall benefits from the MFI's products and services					Total
			Highly Benefited	Somewhat Benefited	No Effect	Not Benefited	Not at all benefited	
	Bandhan	No.	120	73	0	2	0	195
		% within MFI name	61.5%	37.4%	0	1.0%	0	100.0%
	Arohan	No.	59	61	0	0	0	120
		% within MFI name	49.2%	50.8%	0	.0%	0	100.0%
	Destiny	No.	27	3	0	0	0	30
		% within MFI name	90.0%	10.0%	0	.0%	0	100.0%
	Anjali	No.	17	27	0	1	0	45
		% within MFI name	37.8%	60.0%	0	2.2%	0	100.0%
	Sahara	No.	20	10	0	0	0	30
		% within MFI name	66.7%	33.3%	0	.0%	0	100.0%
	VSSU	No.	21	13	0	1	0	35
		% within MFI name	60.0%	37.1%	0	2.9%	0	100.0%
	Sarala	No.	14	16	0	0	0	30
		% within MFI name	46.7%	53.3%	0	.0%	0	100.0%
Total		No.	278	203	0	4	0	485
		% within MFI name	**57.3%**	**41.9%**	**0**	**.8%**	**0**	**100.0%**

(Source: Filed Survey by the respondents)

It has been found that maximum of the respondents (57.3%) are 'Highly benefited' with the overall services of the clients. 41.9% of the respondents are 'Somewhat benefited'. But only 4 clients expressed their dissatisfaction about the overall benefits of the services.

A Chi-Square test has been done to examine whether there is any relation between the 'Numbers of Loan' and 'Overall benefits of the clients'.

Chi-Square Test

H_0 = There is no significant relation between the 'Number of loans' and 'Overall benefits of the clients'

H_1 = There is significant relation between the 'Number of loans' and 'Overall satisfaction of the clients'

The Table-7 in the next page shows the effect of number of loan on overall benefits of clients.

Table 7: Relation between Number of Loans and Overall Benefits of the clients

No of Loans		Overall benefits from the MFI's products and services					Total
		Highly benefited	Somewhat benefited	No Effect	Not benefited	Not at all benefited	
	1-2	86	124	0	4	0	214
	3-4	128	56	0	0	0	184
	5-6	50	12	0	0	0	62
	7-8	9	11	0	0	0	20
	Above 8	5	0	0	0	0	5
Total		**278**	**203**	**0**	**4**	**0**	**485**

Table-8 below shows the Chi-Square result.

Table 8: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	58.227[a]	8	.000
Likelihood Ratio	62.858	8	.000
Linear-by-Linear Association	31.046	1	.000
N of Valid Cases	485		

(Source: Filed Survey and Comipled by Researcher)

The P value of the Chi-Square test at 5% level of level of significance is .000 which is less than .05, so we reject the Null Hypothesis and accept the Alternative Hypothesis. So, we may conclude that there is significant relation between 'No of Loans' and 'Overall benefits of the clients'. From the cross tabulation it is found that with the increase in number of loans, the overall benefits of the clients have also increased.

7. Conclusion and Suggestions

The study found that all of the respondents have availed loan from the MFIs in which they are members. The number of loan ranges from 1 to 10 times. The amount of MFI's loan ranges from as low as Rs 1,000 to maximum of Rs. 50,000 depending on the need and capacity of the borrowers. The main reason behind the MFIs-wise diversity in loan amount may be the perception of the MFIs in disbursing loan and the funding problem after the Andhra Pradesh crisis. Small MFIs normally follows conservative policy in sanctioning loan and generally tries to sanction lesser amount of loan to ensure hundred percent repayments.

It is observed that 52.4% of the loans taken by women have been utilized for their husband's business. In these cases women have become the intermediary between the MFIs and their husband to get the loan. However, we cannot say that taking loan for husband's business is negative for microfinance as it helps the client's family for economic development. None of the clients visited in the survey have availed health loan, education loan, consumption loan, emergency loan and housing loan.

Regarding services, it has been found that 93.81% of the clients are insured under "Credit Life Insurance". Recently two MFIs have started micro-pension services for its clients in selective districts. Only VSSU provides the saving services

to their clients. Bandhan used to provide remittance service. However, MFI's clients are not so aware about the potential benefits of micro-insurance and micro-pension and it has remained as expenses to them. Therefore proper counseling is necessary to make these services useful and popular among the clients. It has been found from the field survey that the financial literacy programme is not so effective and fruitful for the clients. Health services are provided by Sarala & VSSU, but their services are restricted to very limited clients. So, the MFIs have a huge scope for improvement regarding health, education, financial literacy programme and insurance services. The study finally found that the overall benefits of the clients have been increased with the increase in numbers of loans availed by them.

The study is not free from certain limitations. It has considered only ten districts of West Bengal. An increase in sample size may provide different results. Although, there are many important perceptions of clients towards MFIs attitude towards providing credit plus services, it represents few of them. However, it may be expected that the perception of clients in respect of products and services of MFIs in general are more or less similar in nature. Therefore, the present study provides some direction to microfinance sector in general and West Bengal in particular, and involves some policy implications both at the government and other levels.

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Performance and Growth of Bancassurance in India – An Analysis

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Abstract:

Bancassurance is a phenomenon wherein insurance products are offered through the distribution channels of the banks along with a complete range of banking and investment products and services. Factors such as growth of retail banking, financial diversification, economies of scale and scope, cross-selling, thrust for fee-based income, relationship management, internal resources, information technology and tendency of convergence are the factors that contributes significantly to the growth of bancassurance in India: The analysis reveals that the premium collected and its growth rate by private banking players through bancassurance channel during the study period is impressive. Similarly, the growth of share of income from bancassurance business of all Indian domestic commercial banking industry to its other income and total income during the study period is also noteworthy. Even after the two decades of its existence, the concept of bancassurance is still under embryonic stage and could not register a remarkable progress especially in public sector banks. If nurtured properly, bancassurance can go a long way in contributing sustainably to insurance growth of the country.

Key Words:

Bancassurance, Performance Analysis, Financial Inclusion, Growth Analysis

Introduction

Bancassurance is a distribution strategy that involves selling insurance products through branch network of banking organizations. This channel of distribution involves various combinations of both banking and insurance activities. It is a phenomenon wherein insurance products are offered through the distribution channels of the banks along with a complete range of banking and investment products and services. In simple words, bancassurance attempts to exploit synergies between the two different entities such as banks and insurance companies. For banks it is a way of product diversification and a source of generating fee based income. Insurance companies see bancassurance as a device for deepening their market penetration in terms of wide range of customer base and premium turnover. The customer sees bancassurance a product recommended by the banks as their trusted financial advisors and delivery at doorsteps.

Bancassurance – Global Scenario

The spectrum of bancassurance varies radically across the nations and major regions. European countries are the pioneers of bancassurance and it has emerged as significant insurance distribution channel occupying an ever high penetration rate within many regional markets. Undoubtedly, regulatory environment has been the key determinant for the development and growth of bancassurance in different countries. Emerging as an alternative channel for insurance distribution in the 1980s, bancassurance has made its predominant presence in south European countries as well

as in Austria whereas appearing limitedly in two major western European markets; Germany and the UK (Bolovan & Clipici). Bancassurance is a vastly accepted channel for life insurance and is, in general, not a common channel for non-life. It is expected to prosper in emerging European economies over the next five years, especially in Poland and Turkey (International Banker, 2015).

The following attributes narrate the features of bancassurance picture in Europe in comparison to Asia (General) and in specific comparison to India:

a) Regulation – More liberalized in Europe whereas the regulation is ranging from liberalized to strict control in Asia. In India the regulations are supportive, in general.

b) Market Growth: While more developed and matured markets is present in Europe, Asian market has a high growth potential and in India too.

c) Business Model: Most of the European countries have highly integrated models and in Asia the model is mixed in terms of alliances and joint ventures. In India, we have mostly the corporate agency model and integrated model and joint venture is also in vogue.

d) Major Drivers: The factors are almost common across the nations such as tax advantages, pressure on margin, favorable regulations, diversification and growing insurance market.

e) Products: Even though the European market is much developed, the life insurance products are more popular and it resembles Asian markets but the life insurance products are savings linked.

f) Distribution: Distribution is taking place through multi-bank branches in Europe and it is going on mainly through bank branches in Asia including India.

g) Major Players: In Europe, domestic banks and insurers are the major players. Foreign players (both bankers and insurers) perform an important role. In India, commercial banks, cooperative banks (to some extent) and insurers are the major players.

h) Sophistication: – The product and process sophistication is high in Europe, varies in Asia and low in India.

To conclude, emerging markets are expected to continue to show strong bancassurance growth. Trust in banks, foreign entry, booking equity markets and modified regulations are all the contributing factors for the growth of bancassurance around the globe.

Bancassurance in India – Evolution and Growth

The insurance regulations imposed by the government have facilitated the banking sector to engage in insurance distribution by making necessary amendments to the banking law. The sectoral regulators viz., Reserve Bank of India (RBI) and the Insurance Regulatory and Development Authority (IRDA) have permitted the banks to undertake insurance distribution through their separate regulations. The Government of India has recognized insurance as a permissible form of banking business under the Section 6(1) (o) of the Banking Regulations Act 1949, and also through the Reserve Bank of India's notification dated August 9, 2000. IRDAI has notified the Corporate Agency Regulations in October 2002, which allowed banks to act as a corporate agent of one life and one non-life insurers. Thereafter, several bancassurance tie-ups have taken place in full swing.

In continuance of the guidelines issued through the Circular dated August 9, 2002, RBI has sanctioned approval to three banks for bancassurance joint ventures on risk participation basis. Out of these three banks two banks namely, the State Bank of India and Vysya Bank have started their insurance operations under the registered names of SBI Life and ING Vysya, respectively. The third bank, Punjab National Bank, is the second among public sector banks to have received RBI's go-ahead for both life and non-life business (Tripathy.N, 2010).

Bancassurance Structure/Models as Practised In India

Various models of bancassurance tie-ups are practised

in different countries in accordance with the regulatory environment. Strategic alliances for distribution, joint venture and the integrations are the basic models followed, in general, in different nations. Various forms of bancassurance partnerships for insurance distribution in India are classified on the basis of alliance structure and products as explained below:

(i) Referral Arrangements.

It is a basic and preliminary form of alliance that can take place where the banks intending not to take risk and through which they merely share with their client database for business lead on commission basis. As a recent development, in terms of IRDA (Sharing of Database for Distribution of Insurance Products) Regulations 2010, no bank is presently eligible to conduct insurance referral business.

(ii) Corporate Agents

It is the most widely accepted model of bancassurance around the globe and in India too. According to this model, the banks establish tie-ups with the insurance companies for the distribution of insurance products through their branch network without any risk participation. According to this model, the insurance distribution is undertaken by the banks and for which the bank appoints a "Principal Officer" to look into the matters relating to the alliances. "Specified Persons" are the employees of corporate agents chosen exclusively for dealing with the matters relating to insurance sale and they have to fulfil the mandatory requirements of qualification, training and passing of examination as specified in IRDAI regulations. This model is widely accepted by majority of banks including some major cooperative banks. The corporate agency form of alliance is a simple and widely accepted form of insurance distribution without any risk participation. So far, the corporate agents can have alliance with one life and one non-life insurers and in addition they can have tie-up for one stand-alone health insurance.

So far, the banks were allowed to act as a corporate agent of one life, one non-life and insurers and one more exclusive standalone health insurer. The corporate agency form of alliance is a simple and widely accepted form of insurance distribution without any risk participation. As per the new guidelines, the banks can sell the products of three life, three non-life and three standalone health insurers. The IRDAI would consider corporate agents an "intermediary" according to the Insurance Amendment Act, 2015. As per the definition of the Act, "an 'intermediary' or an 'insurance intermediary' refers to insurance brokers, re-insurance brokers, insurance consultants, corporate agents, third-party administrator, surveyors, loss assessors and other such entities". The introduction of new guidelines also brings serious issues into the banking sector. As of now, corporate agents are considered entities working on behalf of an insurance company, a distributor of its products. But in line with new amendment the corporate agents, including banks and their employees are liable for all insurance policies they sell.

(iii) Fully Integrated Financial Service/Joint Ventures

Under this model, the bank undertakes universal banking activities and insurance is among the services offered by them. The model is working by setting –up of a fully owned insurance subsidiary with risk participation and without foreign participation. The bank distributes the insurance products of its own subsidiary only and no other companies' products are allowed. State Bank of India (SBI) and its subsidiaries of SBI Life and SBI General Insurance are the examples of this category. Similarly, ICICI Bank and its insurance subsidiaries of ICICI Prudential Life and ICICI Lombard are also operating the same way.

Under the joint venture arrangements, the banks jointly with other banks promote an insurance company through joint venture with either domestic or foreign insurance company. For example, IDBI Bank and Federal Bank have promoted an insurance company through joint venture with Fortis, the company known as IDBI Federal Fortis.

Contributing Factors for Bancassurance Growth in India

Banks are the largest distributors of private life insurers' channel mix, accounting for 43.6 per cent of the sales.(IRDAI, 2013-14). A report by the Confederation of Indian Industry and EY in August said with other channels struggling to match

the new realities after the 2010 changes, bancassurance was the only major channel that performed favourably. A captive customer base, strong brand recognition, the ability to sell insurance as an add-on with other banking products and a rapidly expanding branch network allowed private banks to scale-up their insurance business. It said in FY15, bancassurance-dominated insurers had performed well, owing to the increased adoption of insurance through an expanding private bank branch network (the top three private banks increased their combined branch count from 4,700 in March 2010 to 10,653 in March 2015) (Saraswathy, M. 2015). Following are the factors from the perspective of banking industry which are contributing significantly to the growth of bancassurance in India:

(a) Growth of Retail Banking

Retail banking networks in India have a very strong presence in the distribution of integrated financial products. The retail banking requirements have been extended and networks are optimized particularly for mortgages, consumer credit, pension etc. Expansion of retail banking combined with tightened risk management practices, increased demand for loan protection by banks which drives the banks to sell insurance by banks themselves. Privileged access by the bank staff to the bank's consumer portfolio (and to the data concerning customers) also facilitated bancassurance and having only one interlocutor can be more practical to customers for obtaining simple answers for all their financial requirements. Banks as interlocutors can serve the customers for insurance needs which resulted in bancassurance partnerships (Chawla & Singh, 2007-08).

(b) Financial Diversification

Banks need to offer a more diversified product range that appeal to a diverse range of risk profiles for which bancassurance is a viable model. Distribution of insurance products to meet the broader financial services requirements of retail customers – Banks as a *one-stop-shop* for financial products (Wide range of financial products). Bancassurance addresses twin needs of portfolio diversification by retail customers and integration of marketing by banks.

(c) Economies of Scope and Scale

Bancassurance leads to increased market power/market share. Bancassurance enjoys a steady stream of cash flows and therefore, liquidity can be seen as a form of economy of scale. It reduces or cross-subsidizes the banks fixed costs and contributes significantly in attaining branch viability. Bancassurance results in reduced earnings volatility of banks and economies of scope arise from centralized customer databases and large branch networks. Bancassurance results in reduced information and transaction costs of insurance distribution.

(d) Cross Selling

Cross-selling of the insurance products is a strategy by banks to expand their footprints and to increase their customer base. Cross-selling of the insurance products becomes easy and can be sold much better way by banks in comparison to agency channel since the banks are having direct and frequent contact with the customers. Banks takes the advantage of their normal course of lending especially; the home loans, vehicle loans etc. for cross-selling the insurance products and combine it as a package. Bancassurance has been quite effective for selling complex investment products to high net worth individuals via wealth managers who man the personal banking division. Bancassurance is not implying any change in the ownership structure or the organizational model of the bank.

(e) Profitability – Fee Based Income (Non-Interest Income)

Bancassurance has been viewed as an opportunity to lighten the increased pressure on margin/spread of banks. It enables the banks to generate a stable alternative source of fee-based income/additional stream of revenue, which in turn reduces their dependence on the interest margin. Financial benefits to the banks performance can flow in a number of ways like increased income generated in the form of commissions, opportunity to increase the productivity of staff and reduction of the effect of the banks fixed costs, as they will also be benefitted over the insurance partnership.

Bancassurance is a risk management device as the fee income

earned on the sale of insurance can be used to offset the loss on account of bad loans. It is purely fee based activity and hence there is no lock-up of assets or capital. Bancassurance optimizes the use of branch network and increases the viability and profitability of the existing branches.

(f) Banks as Trusted Financial Advisors – Relationship Management

Banks are culturally more acceptable to the customers due to their age-old relationship with the customers, especially in rural and semi-urban areas. This unique relationship helps bancassurance model of insurance distribution. Banks continue to command as the highest trusted financial advisors among the retail customers which favour bancassurance alliances. Banks are the trusted business associates for the insurance companies that help bancassurance partnerships. Bancassurance is an ideal option as banks fulfil the three major requirements for a successful insurance business viz., asset management/investment skills, distribution skills and capital adequacy.

Existing wide range of corporate and retail clientele base of banks provide potential opportunities for bacassurance. The service of insurance products can be concentrated and tackled easily by the banks since they have direct and frequent contact with the customers. Customer retention and customer loyalty enhancement in banks influences positively the emergence and growth of bancassurance. The brand equity, which banks enjoy over the insurance companies, is yet another factor which banks can leverage to enter into bancassurance.

(g) Infrastructure and Internal Resources

Bank branch density i.e., wide network of bank branches across the country is a prominent factor favouring bancassurance growth. The transactional data advantage (i.e., a bank enjoys with the benefit of its prior knowledge of already knowing its customers) is one of the driving forces for bancassurance. Utilization of excess manpower or overstaffing in banks is a boon and banks see the bancassurance as an opportunity to increase the productivity of staff as they are now have the chance to offer a wider range of services to clients. Efficient utilization of the available customer database and in-house expertise in funds management by banks will be an added advantage for banks entering into bancassurance.

(h) Information and Communication Technology (ICT) Developments in Banking Industry

Advance in Information and Communication Technology (ICT) has allowed the banks to tap vast amount of data about their clients and really use it to do effective targeting of clients and get much better leads for selling regular bank products also favours insurance selling. Bancassurance is driven by the embedded potential of product mixes and packages in which insurance and banking products are combined. The "multi-dynamic channel" network by banks, especially the "internet banking" platform enables the growth of bancassurance opportunities through internet. Bancassurers can have a competitive advantage over traditional insurers, derived from the provision of ICT enabled "multi-channel "customer services.

(i) Convergence

It is realised that joint bank and insurance products can be better for customers as they provide more competitive solutions than the traditional stand alone banking or insurance products. A superior bancassurance strategy will build on the superior brand equity of banks by integrating insurance into the bank product portfolio and distribution infrastructure.

(j) Competition

Growing competition has induced the banks to create niche for themselves by giving importance in the areas of their expertise and excellence for which bancassurance is considered by banks as one of the opportunity.

(k) Regulations

Regulators in India have been quite favorable to promote the development of bancassurance in recent years, as it promotes the competition among insurance companies and increases insurance ownership among consumes. Liberal regulations on ownership of insurance companies by banks and on the sale of insurance products through banking networks are clearly a pre-condition for bancassurance to develop. A positive

fiscal treatment of long-term savings products has favoured the development of bancassurance, as bancassurers were able to exploit these tax advantages by offering simple, low cost, long term-savings products, which were an alternative to the traditional and complex products offered by insurance companies.

Analysis of Growth of Bancassurance: Channel-wise New Business Premium of Life Insurance

The growth of bancassurance in life insurance business in India is analysed through the yardstick of channel-wise new business premiums mobilised. The period study includes five years commencing from 2009-10 to 2013-14. The performance of new business premiums of life insurance (individual), group insurance and total (individual and group) has been compared channel-wise such as individual agents, corporate agents (banks), other corporate agents, brokers and direct selling during the study period. As against the traditional "individual agents" channel which has declined drastically (Industry total from 60.91 per cent during the year 2009-10 to 40.64 percent in the year 2013-14), the premium collected by private players through bancassurance channel during the year 2013-14 contributes close to 35 per cent and by LIC through this channel is 1.30 percent. In 2009-10, the figure was only 22.02 per cent and 1.17 percent respectively. The growth rate achieved during the study period is 58.94 per cent and 11.11 percent respectively (Table - 1).

In the case of new business premium mobilised by life insurers for "individual" life insurance business, the traditional agents channel has declined from 79.61 in the year 2009-10 per cent to 78.40 per cent of the industry total in the year 2013-14. The premium collected by private players through bancassurance channel during the year 2013-14 contributes 43.62 percent and by LIC through this channel is 2.77 per cent. In 2009-10, the figure was only 24.88 per cent and 1.64 per cent respectively. The growth rate achieved during the period of study is 75.32 per cent and 68.90 percent respectively. It is observed from the above analysis that there has been an impressive growth of new business premium collected (individual life premiums) by private players through bancassurance channel (Table - 2).

Similarly, in the case of new business premium mobilised by life insurers for "group insurance" business a fluctuating trend has been observed. The traditional agents channel has declined from 5.81 per cent in the year 2009-10 to 1.76 per cent of the industry total in the year 2013-14. The premium collected by private players through bancassurance channel during the year 2013-14 contributes 17.22 percent and by LIC through this channel is 0.05 per cent. In 2009-10, the figure was only 8.67 per cent and 0.06 per cent respectively. The growth rate achieved during the study period is 98.61 per cent for private insurers (Table - 3).

Performance Analysis of Bancassurance – Income Generated by Banks from Bancassurance Business

One of the important reasons of banks entering into the bancassurance partnership is enhancing their other income or miscellaneous income. Bancassurance has been viewed as an opportunity to lighten the increased pressure on margin/spread of banks. It enables the banks to generate a stable alternative source of fee-based income/additional stream of revenue, which in turn reduces their dependence on the interest margin. An attempt has been made in the section to analyse the status of income generated by the banks from bancassurance business in terms of its growth and its contribution to miscellaneous income and total income of banks. The analysis covers all the domestic commercial banks which includes; State Bank of India (SBI) group banks, other public sector banks and private sector banks for the study period consisting of five years commencing from the year 2009-10 to the year 2013-14.

The bancassurance income generated by other public sector banks during the study period has shown a progress of 108.35 per cent and the SBI group alone is able to push its growth to the extent of 9.17 per cent. All the banks under public sector altogether have witnessed the growth of 49.55 percent during the study period. Whereas, the private sector banks have shown an immense growth over the study period to the extent of 137.17 percent. It is significant to note that the Old Private Sector Banks (OPSBs) have greatly exploited the bancassurance potential by showing an impressive growth rate of 245.17 percent i.e., they have grown-up in bancassurance income generation for 2.5 times during the period of study.

The New Private Sector Banks (NPSBs) also have registered their growth in this venture significantly by declaring a growth rate of 137.17 percent. The overall Indian domestic commercial banking industry has grown-up to the extent of 120 percent in bancassurance business (Table - 4).

Analysis of Bancassurance Contribution to Other Income and Total Income of Banks

The contribution of bancassurance income to other income and total income of public sector banks other than SBI groups during the study period i.e., 2009-10 to 2013-14 is averaged at 1.32 percent and 0.12 percent respectively. The same for the SBI group is 1.55 percent and 0.20 percent respectively. The total public sector banks share is averaged at 1.40 percent and 0.15 percent respectively. The ratio of bancassurance income to both the other income and total income of OPSBs is significantly high with the average figure of 11.78 percent and 1.20 percent respectively. Similarly, the NPSBs also have contributed remarkably well with the average figures of 4.97 percent and 0.91 percent respectively. Altogether all the banks in the private sector contributed on an average to the extent of 5.92 percent and 0.98 percent respectively. The share of income from bancassurance business of all Indian domestic commercial banking industry to its other income and total income during the study period is averaged at 2.88 percent and 0.34 percent respectively (Table - 5).

Concluding Observations

As the financial inclusion drive is on forefront, it is likely to bring more business to the entire financial services industry and is expected to have an impressive further increase to the contribution of bancassurance channel. Banks in India, both domestic and foreign, have networks that span the whole country, reaching the most remote of areas, touching diverse cultures and cutting across all social classes. They have expertise on satisfying the financial needs, saving patterns and life stages of the customers they serve, something the insurance companies would find nearly impossible to achieve on their own. Tying up with banks would therefore be the logical route for insurers to take for them to achieve extensive geographical spread and customer access across the country. The growth of bancassurance business in India certainly depends on the growth of banking products since the cross-selling of insurance sale is taking place mainly through the tied-sale i.e., sale of insurance along with the loan or deposit products. Even after the two decades of its existence, the concept of bancassurance is still under embryonic stage and could not register a remarkable progress especially in public sector banks. By and large, the corporate agency model in the current format is accepted by the banks and its staff at all levels and due importance is given to the insurance business, whereas the contribution of bancassurance income to the non-interest earnings of the banks is very meagre and could not make impressive records. The blooming of bancassurance is a phenomenon itself and not solely for increasing fee based income, but enables to improve sales culture in banks. The banks and insurance companies need to work together as partners-in-progress for the cause of customers. This will overcome the inhibiting factors and accept banks as a single-window solution for all their financial and investment needs. If nurtured properly, banks can go a long way in contributing sustainably to insurance growth of the country.

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Table - 1

New Business Premium (Individual and Group) of Life Insurers - Channel-wise

(Figures in per cent of Premium)

Year	Insurer	Individual Agents	Corporate Agents			Brokers	Direct Selling	Total New Business
			Banks	Growth (%)	Others			
2009-10	Private Total	41.85	22.02	*20.98*	9.34	3.16	23.63	100.00
	LIC	71.14	1.17	*1.74*	0.46	0.37	26.86	100.00
	Industry Total	60.91	8.46	*16.20*	3.56	1.34	25.73	100.00
2010-11	Private Total	36.48	28.29	*55.43*	7.39	4.22	23.62	100.00
	LIC	61.79	1.44	*25.21*	0.42	0.03	36.32	100.00
	Industry Total	53.9	9.81	*34.75*	2.59	1.33	32.36	100.00
2011-12	Private Total	31.59	36.08	*98.28*	6.92	4.42	20.99	100.00
	LIC	52.55	1.51	*31.30*	0.12	0.05	45.76	100.00
	Industry Total	46.64	11.25	*54.23*	2.04	1.28	38.78	100.00
2012-13	Private Total	27.59	35.2	*93.40*	5.16	4.14	27.9	100.00
	LIC	53.96	1.74	*51.30*	0.09	0.02	44.19	100.00
	Industry Total	46.40	11.33	*55.63*	1.54	1.2	39.52	100.00
2013-14	Private Total	26.48	34.38	*88.90*	4.09	4.21	30.84	100.00
	LIC	45.25	1.3	*13.04*	0.05	0.03	53.37	100.00
	Industry Total	40.64	9.43	*29.53*	1.04	1.05	47.84	100.00

Source: *Annual Reports of IRDAI*

* Any entity other than banks but licensed as a corporate agent. # Does not include its overseas new business premium. Note: 1) New business premium includes first year premium and single premium.2) The leads obtained through referral arrangements have been included in the respective channels.

Table - 2

New Business Premium (Individual) of Life Insurers - Channel-wise

(Figures in per cent of Premium)

Year	Insurer	Individual Agents	Corporate Agents			Brokers	Direct Selling	Total New Business
			Banks	Growth (%)	Others			
2009-10	Private Total	50.67	24.88	*31.71*	10.28	3.44	10.73	100
	LIC	97.75	1.64	*26.15*	0.52	0.09	0.00	100
	Industry Total	79.61	10.60	*32.99*	4.28	1.38	4.13	100
2010-11	Private Total	46.89	33.21	*75.81*	8.70	4.77	6.43	100
	LIC	97.45	1.81	*39.23*	0.59	0.04	0.11	100
	Industry Total	78.95	13.30	*66.87*	3.56	1.77	2.42	100
2011-12	Private Total	44.05	39.01	*16.51*	7.52	5.07	4.35	100
	LIC	96.56	2.57	*97.69*	0.22	0.04	0.61	100
	Industry Total	78.69	14.96	*87.70*	2.70	1.75	1.90	100
2012-13	Private Total	39.68	43.08	*128.06*	6.04	5.05	6.14	100
	LIC	95.86	3.16	*143.08*	0.15	0.02	0.82	100
	Industry Total	77.53	16.18	*103.00*	2.07	1.66	2.55	100
2013-14	Private Total	40.08	43.62	*130.92*	*4.00*	4.91	7.38	100
	LIC	95.99	2.77	*113.08*	*0.10*	0.02	1.12	100
	Industry Total	78.40	15.62	*95.98*	*1.33*	1.56	3.09	100

Source: *Annual Reports of IRDAI*

* Any entity other than banks but licensed as a corporate agent. # Does not include its overseas new business premium.

Note: *1) New business premium includes first year premium and single premium.*

2) The leads obtained through referral arrangements have been included in the respective channels.

Table - 3
New Business Premium (Group) of Life Insurers - Channel-wise (Figures in per cent of Premium)

Year	Insurer	Individual Agents	Corporate Agents			Brokers	Direct Selling	Total New Business
			Banks	Growth (%)	Others			
2009-10	Private Total	0.75	8.67	*-29.85*	*4.96*	1.88	83.74	100
	LIC	7.44	0.06	*-86.36*	*0.31*	1.05	91.15	100
	Industry Total	5.81	2.15	*-37.86*	*1.44*	1.25	89.34	100
2010-11	Private Total	0.96	11.51	*-6.87*	2.91	2.36	82.26	100
	LIC	6.84	0.88	*100*	0.18	0.01	92.09	100
	Industry Total	5.63	3.08	*-10.98*	0.74	0.49	90.06	100
2011-12	Private Total	4.26	29.65	*139.88*	5.61	2.99	57.49	100
	LIC	4.38	0.36	*18.18*	0.02	0.07	95.17	100
	Industry Total	4.36	6.35	*83.52*	1.17	0.66	87.46	100
2012-13	Private Total	4.08	19.88	*60.84*	*3.45*	2.38	70.21	100
	LIC	3.12	0.02	*-95.45*	*0.01*	0.02	96.84	100
	Industry Total	3.34	4.63	*33.81*	*0.57*	0.57	90.66	100
2013-14	Private Total	1.23	17.22	*39.32*	4.26	2.91	74.38	100
	LIC	1.87	0.05	*-88.63*	0.00	0.04	98.04	100
	Industry Total	1.76	3.05	*-11.84*	0.74	0.54	93.91	100

Source: *Annual Reports of IRDAI*
** Any entity other than banks but licensed as a corporate agent. # Does not include its overseas new business premium.*
Note: *1) New business premium includes first year premium and single premium.*
2) The leads obtained through referral arrangements have been included in the respective channels.

Table - 4
Income Generated by Banks from Bancassurance Business

Sl.No	Bank Groups	Year				
		2009-10	2010-11	2011-12	2012-13	2013-14
1	Public Sector Banks (Rs. In Crores)	217.03	432.36	694.39	425.41	452.19
	Growth Rate (%)	*0.00*	*99.22*	*219.95*	*96.01*	*108.35*
2	State Bank Groups (Rs. In Crores)	315.97	314.82	232.80	309.22	344.95
	Growth Rate (%)	*0.00*	*-0.36*	*-26.32*	*-2.13*	*9.17*
3	Total of Public Sector Banks (Rs. In Crores)	533.00	747.18	927.19	734.63	797.14
	Growth Rate (%)	*0.00*	*40.18*	*73.95*	*37.82*	*49.55*
4	Old Private Sector Banks (OPSBs) (Rs. In Crores)	204.32	357.62	402.61	555.86	705.27
	Growth Rate (%)	*0.00*	*75.02*	*97.04*	*172.05*	*245.17*
5	New Private Sector Banks (NPSBs) (Rs. In Crores)	692.96	769.54	1200.39	1409.21	1643.56
	Growth Rate (%)	*0.00*	*11.05*	*73.22*	*103.36*	*137.17*
6	Total of Private Sector Banks (Rs. In Crores)	897.28	1127.16	1603.00	1965.08	2348.83
	Growth Rate (%)	*0.00*	*25.61*	*78.65*	*119*	*161.77*
7	**Grand Total (Total of all Banks) = 3 + 6** (Rs. In Crores)	**1430.28**	**1874.34**	**2530.19**	**2699.71**	**3145.97**
	Growth Rate (%)	*0.00*	*31.04*	*76.9*	*88.75*	*119.95*

Source: *Performance Highlights of Public Sector Banks and Private Sector Banks, Indian Bank's Association – 2010-11to 2013-14)*

Table - 5

Ratio of Bancassurance Income to Other Income and Total Income (Figures in Percentage)

Sl.No	Bank Groups	Year									
		2009-10		2010-11		2011-12		2012-13		2013-14	
		Ratio of BA to OI	Ratio of BA to TI	Ratio of BA to OI	Ratio of BA to TI	Ratio of BA to OI	Ratio of BA to TI	Ratio of BA to OI	Ratio of BA to TI	Ratio of BA to OI	Ratio of BA to TI
1	Public Sector Banks	0.71	0.09	1.51	0.15	2.14	0.19	1.15	0.10	1.07	0.09
2	State Bank Groups	1.72	0.27	1.64	0.24	1.30	0.14	1.57	0.17	1.52	0.17
3	Total of Public Sector Banks	1.09	0.15	1.56	0.18	1.84	0.17	1.29	0.12	1.22	0.12
4	Old Private Sector Banks (OPSBs)	6.48	0.86	11.81	1.36	11.90	1.12	13.41	1.26	15.31	1.42
5	New Private Sector Banks (NPSBs)	4.01	0.87	4.35	0.84	5.68	0.98	5.49	0.93	5.32	0.94
6	Total of Private Sector Banks	4.39	0.87	5.44	0.96	6.54	1.01	6.60	1.00	6.61	1.05
7	**All Banks**	2.06	0.31	2.73	0.35	3.38	0.36	3.12	0.33	3.13	0.35

Source: *Calculated Value based on the data compiled from the Performance Highlights of Public Sector Banks and Private Sector Banks, Indian Bank's Association – 2010-11 to 2013-14)::*

Note: *Ratio of BA to OI = Ratio of Bancassurance Income to Other Income Ratio of BA to TI = Ratio of Bancassurance*

Relative and Incremental Explanatory Power of Economic Value Added over Traditional Profitability Measures in Explaining Stock Returns: Evidence from Indian NSE Listed Pharmaceutical Companies

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Abstract:

The aim of this study is to investigate the relative and incremental explanatory power of EVA over traditional profitability measures (namely net income, operating income and residual income) in explaining stock returns of NSE listed Pharmaceutical companies during the period 2001-2014. It may be concluded from the overall analysis of the relative information criteria that EVA has more explanatory power of stock returns than the operating income and residual income under the pharmaceutical industry. Moreover, it has also been established that EVA adds incremental information over net income, operating income and residual income in explaining the variability of stock returns at least in pharmaceutical industry during the period of our study.

Key Words:

EVA, Net Income, Operating Income, Residual Income, Relative Information Content, Incremental Information Content

Introduction

The empirical studies highlight that there is no single accounting measure which explains the variability of stock returns [Chen & Dodd, 1996; Rogerson, 1997]. In recent years, maximising shareholders value has become the new corporate paradigm and Economic Value Added (EVA), a value based measure, helps to evaluate the real profitability of a company [Reddy & Satish, 2001]. Any profit earned over and above the cost of capital is Economic Value Added. Joel Stern, managing partner of M/S. Stern Stewart & Co. of New York City popularized the concept of EVA as an ultimate measure of business performance in 1980s. Bennett Stewart in his book "The Quest for Value" used the term EVA with a symbol TM as super script, which is the normal practice of referring to any registered trademark. The EVA is actually Stern Stewart & Co.'s trademark for a specific method of calculating economic profit. According to them, the adoption of EVA should indirectly bring changes in management, which in turn can enhance firm value and positively affect the stock return. However, some researcher, namely Dodd and Chen (1996), Biddle, Bowen and Wallace (1997) etc. have offered contradictory results regarding the superior informational content of EVA over

traditional measure of performance [Kyriazis and Anastassis, 2007]. In this study, an attempt has been made to compare the explanatory power of EVA and traditional profitability measures in explaining the stock returns with the help of relative and incremental information approaches. The present work is based on the Easton and Harris (1991) formal valuation model, which has been used by many researchers in their study to explain the relationship between stock returns and earnings. Based on their model, the relative information content approach has been applied to answer whether the information content of EVA is greater than that of NI, OI, and RI (Net Income, Operating Income and residual Income) to explain the stock return. Accordingly, each performance measure is taken separately to explore this research question. On the other hand, the incremental information content approach has been applied to identify which particular performance measure (out of EVA or traditional profitability measures) explains the stock returns in a better manner of a particular organisation. This approach combines two performance measures to answer this research question.

Objective

The objective of this study is to investigate the relative and incremental explanatory power of EVA over traditional profitability measures (namely net income, operating income and residual income) in explaining stock returns of NSE listed Pharmaceutical companies during the period 2001-2014.

Hypotheses

The hypotheses of the study are as follows:

1. EVA does not explain the variability of stock returns better than the net income, operating income and residual income.

2. EVA does not provide any additional information in explaining the variability of stock returns.

Database

According to the objectives and the hypotheses of the study, the pharmaceutical companies that are listed in National Stock Exchange (NSE) during the period of 2001-2002 to 2013-2014 have been chosen. During the period of the study eighty-two pharmaceutical companies were listed in NSE stock exchange. Out of them we have found out data of only fifty-six companies during the study period. The sample companies have been selected on the basis of simple random sampling technique from these fifty-six companies. From the sub-population, we have considered only 50% companies as a sample and selected twenty-eight companies- viz. Ajanta Pharma, Aurobindo Pharm, Aventis Pharma, Cadila Health, Cipla, Dr Reddy's Labs, Elder Pharma, FDC, Glaxosmit, Glenmark Pharma, Ipca Labs., Jagsonpal Pharma, J B Chem & Pharma, Jubilant Life, Kopran, Lyka Labs, Merck, Morepen Labs., Natco Pharma, Pfizer, Piramal Health, Ranbaxy Labs, Shasun Pharma., Sun Pharma. Inds, Torrent Pharma., Unichem Labs., Wockhardt and Wyeth.

The basic data on different financial variables, such as profit after tax, profit before interest and tax, provision for taxation, equity share capital, preference share capital, reserve and surplus, long term loans, current assets and current liabilities etc. have been collected from the Prowess of CMIE database over the last thirteen years (i.e. from 1st April 2001 to 31st March, 2014).The bank rates during the study period which are used as a proxy for risk free rate of return, have been collected from the website of Reserve Bank of India.

Methodology

In conformity with the objectives of our study, EVA has been computed firstly in our study as: EVA= NOPAT- (CE × WACC); where, NOPAT= Net operating profit after tax; CE= Capital employed; WACC= Weighted Average Cost of Capital. It is important to note that, Stewart & Co. has made 164 necessary adjustments for computing EVA. However, in this study, EVA has been calculated by making ten necessary adjustments which are relevant in the Indian context according to a study carried out by Business Today. However, the computed results of EVA of the select companies over the period 2001-02 to 2013-14 are not reported separately.

Based on the Easton and Harris (1991) model, relative information content compares which performance measure is superior in terms of association with stock returns [Chen et. al, 2001]. In this approach, we have examined whether the

information content of EVA is greater than that of different profitability measures, namely net income (NI), operating income (OI) and residual income (RI). To explore this, based on Easton and Harris (1991) model, the following equations have been used in this study.

(1) $R_t = a_0 + a_1 NI/ P_{t-1} + a_2 \Delta NI/ P_{t-1} + e_1$

(2) $R_t = b_0 + b_1 OI/ P_{t-1} + b_2 \Delta OI/ P_{t-1} + e_2$

(3) $R_t = c_0 + c_1 RI/ P_{t-1} + c_2 \Delta RI/ P_{t-1} + e_3$

(4) $R_t = d_0 + d_1 EVA/ P_{t-1} + d_2 \Delta EVA/ P_{t-1} + e_4$

where NI= Net income of firm at time period t; ΔNI= change in NI over period t-1 to t; OI= operating income of firm during the year t; ΔOI= change in OI over period t-1 to t; RI= residual income of firm at time t. ΔRI= change in RI over period t-1 to t; EVA= Economic Value Added of firm during the year t. ΔEVA= change in EVA over period t-1to t. R_t = Return at time t.

Since estimation of residual suffers from serious cross sectional heteroscedastisity, accordingly all the explanatory variables are deflated by the stock price (Pt-1), to reduce the problem of heteroscedasticity from the data. Besides, in order to check the presence of heteroscedasticity problem in the said relative information content models, we have used White's test. To detect the presence of autocorrelation problem in all regression models, Durbin–Watson statistics (d) has been used. All regression models have been tested for multicollinearity by using the Variance Inflation Factor (VIF). In order to conduct a formal test on the statistical significance of the differences in the R^2 of the pooled regression, in this study we have carried out Davidson-MacKinnon J-test for non- nested regression [Gujrati.D,2007].

The incremental information content has examined whether EVA provides more information in explaining the variability of stock returns, which is not incorporated in other traditional profitability measures, namely NI, OI and RI. In order to test the incremental information content of EVA, the following models have been used:

Return= $n_0 + b_1 NI / P_{t-1} + b_2 \Delta NI / P_{t-1} + e_1 EVA/ P_{t-1} + e_2 \Delta EVA / P_{t-1} + u_{2t}$

Return = $n_0 + c_1 RI / P_{t-1} + c_2 \Delta RI / P_{t-1} + e_1 EVA/ P_{t-1} + e_2 \Delta EVA / P_{t-1} + u_{3t}$

Return = $n_0 + d_1 OI / P_{t-1} + d_2 \Delta OI / P_{t-1} + e_1 EVA/ P_{t-1} + e_2 \Delta EVA / P_{t-1} + e_{4t}$

The test for the incremental information content of EVA has been carried out using Wald test on the coefficients of each variable in the stated pooled regression models.

Data Analysis and Interpretation

It has been observed from Table 1 to Table 4 that all the models in the relative information content for the select industry do not have heteroscedasticity, autocorrelation and multicollinearity problems. Table 1 depicts that adjusted R2 is statistically significant at 5% level according to the F-statistics in the pooled regression with EVA and change in EVA for the pharmaceutical industry during the study period 2001-02 to 2013-14. According to the t values, all the coefficients of the explanatory variables in the pooled regressions indicate their significant contribution in the model. In the annual cross sectional regression, all the coefficients also indicate the significant value according to the t-statistics. Most of the yearly regression equations indicate high values of adjusted R2 and they are statistically significant at 1% level except the year 2008-2009 in which it is significant at 5% level.

The value of adjusted R^2 (0.17) for pooled regression with NI is statistically significant at 1% level. A similar result has also been observed in the annual cross sectional regressions. Except one regression (in the year 2010-11), all other regressions indicate high values of adjusted R^2 value with significant F statistics at 1% level. However, adjusted R^2 is significant at 10% level in the year 2010-11.

The result of the second regressions with OI indicates a significant adjusted R^2 value according to the F-statistics at 5% level in the pooled sample during the period under study. But in the annual cross sectional regression mixed results of t- statistics have been obtained. For the individual year of cross sectional sample, reported results are not encouraging in the pharmaceutical industry. The adjusted values of R^2 are insignificant for three years (2002-03, 2005-06, and 2009-10)

according to the F-statistics. Beside this, adjusted values of R^2 are significant for one year (2002-03) at 10% level and for remaining years at 1% or 5% level.

The result of the regression equation with RI which is exhibited in Table 4, it has been observed that in the pooled regression, all explanatory variables are insignificant according to t values except the coefficient of change in residual income. In the cross sectional yearly regression, it has also been observed that, a large number of coefficients are not statistically significant according to the t values. It has been observed that pooled regression reflects low adjusted R^2 value, but it is significant at 10% level during our study period. A similar result has also been recorded in annual cross sectional cases.

It has been observed from the entire estimation of the regression in the pharmaceutical industry, regression with NI indicates more value relevance as its highest adjusted R^2 value, which is followed by EVA (adjusted R^2=0.029) and OI (adjusted R^2=0.017). Regression with RI indicates less explanatory power than the other explanatory variables. The last four columns in Table 2 to Table 4 depict the result of J-test (annual and pooled cross sectional) in the pharmaceutical industry during the period under study. In the pooled regression, it has been observed that, EVA indicates more value relevance over the OI and RI. But it is not possible to conclude that, EVA seems to have more value relevance than NI, because of acceptance of both the models in the J-test. So in the pooled regression, for comparing EVA with NI, no suitable conclusion can be obtained from the J-test. A similar result has also been observed in the yearly regression. In the years 2004-05, 2005-06, 2007-08, 2008-09, 2012-13 and 2013-14 no suitable conclusion with regard to the acceptance of NI and EVA can be made as per J-test. However, in most of the cases, yearly cross regressions indicate that EVA has more value relevance than OI and RI for explaining the stock returns during the period under study.

It has been observed from the results of the Table 5 to Table 7 that most of the coefficients (except coefficient of the residual income) in the pooled cross sectional regressions are statistically significant according to the t statistics. The most of the coefficients in the yearly cross sectional regressions are statistically significant according to the t values. According to the results of Wald test in the pooled cross sectional regression, it has been observed that EVA provides incremental information content over NI, OI and RI during the period under study. Except the year 2009-10, most of the annual cross sectional regressions reflect that EVA adds incremental information over the traditional profitability measures. In the year 2008-09, regression equation with NI supports the null hypothesis. Moreover, the entire result of the pharmaceutical industry supports the claim of Stern & Stewart that EVA has an incremental information power over traditional profitability measures.

Conclusion

It may be concluded from the overall analysis of the relative information criteria that though EVA has more explanatory power of stock returns than the operating income and residual income under the pharmaceutical industry, but it is very difficult to compare between EVA and NI during the period under study. So we cannot reject the null hypothesis that explanatory power of EVA on stock returns is nearly similar with the other profitability measures under the pharmaceutical industry during the study period. Moreover, it has been established that, EVA adds incremental information over net income, operating income and residual income in explaining the variability of stock returns at least in pharmaceutical industry during the period of our study.

Thus, EVA adds some incremental information over the traditional profitability measures in explaining the variability of stock returns. The findings of the study might be helpful to investors in evaluating and choosing their investments that will generate the most value to them. Besides, EVA based compensation plan also provides closer alignment between the interests of the managers and shareholders. However, we are aware of the limitations of our study: firstly, the computation of EVA is based on ten necessary adjustments only; secondly, in this work we have considered only one industry. A comprehensive work with all the industries of India could produce better conclusions; thirdly, this study is mainly based on cross sectional data. Use of panel data may produce better result. Comparative analysis for companies belonging to all industries over a longer time horizon is left for future research works.

Table 1: Relative Information Content Approach Regressions of Annual Stock Returns to EVA Levels and Change in EVA

Model 1: $R_{it} = a_0 + a_1 EVA_{it} + a_2 \Delta EVA_{it} + u_{it}$

Year	a_0	a_1	a_2	Adj R^2	D-W test	White test
Pooled	0.52 (3.54)*	0.26 (3.46)* {1.01}	13.47 (5.49)* {1.01}	0.03 [4.42]**	1.79	F=1.41 OR^2=3.27
2002-03	2.625 (4.01)	1.023 (2.33)** {1.02}	5.6 (3.98)* {1.02}	0.48 [7.51]*	2.09	F=0.29 OR^2=3.82
2003-04	1.39 (2.58)*	0.35 (9.23)* {1.14}	1.18 (0.77) {1.14}	0.78 [48.03]*	1.94	F=0.18 OR^2=1.92
2004-05	0.24 (1.88)*	0.36 (9.29)* {1.14}	18.9 (3.74)* {1.14}	0.78 [48.31]*	1.94	F=1.05 OR^2=2.17
2005-06	0.89 (3.25)*	0.39 (4.03)* {1.04}	21.69 (3.25)* {1.04}	0.39 [12.66]*	1.56	F= 0.42 OR^2= 4.11
2006-07	0.20 (1.09)	0.31 (5.46)* {1.07}	13.6 (3.04)* {1.07}	0.51 [15.24]*	1.81	F= 0.23 OR^2=0.91
2007-08	-0.23 (-0.79)	0.44 (5.24)* {1.02}	17.98 (4.21)* {1.02}	0.62 [19.74]*	2.06	F=1.31 OR^2= 5.05
2008-09	1.31 (3.39)*	0.56 (2.11)** {1.01}	70.07 (2.74)* {1.01}	0.17 [3.73]**	2.05	F= 0.83 OR^2= 3.11
2009-10	0.39 (1.76)***	0.74 (2.4)** {1.08}	13.97 (2.98)* {1.08}	0.38 [10.21]*	2.02	F= 0.31 OR^2= 1.07
2010-11	0.46 (3.9)*	0.56 (1.78)* {1.01}	35.31 (2.76)* {1.01}	0.29 [3.87]*	2.01	F=1.12 OR^2=2.67

2011-12	1.22 (1.97)*	0.32 (3.54)* {1.09}	17.83 (4.91)* {1.09}	0.63 [19.6]*	2.18	F=0.69 OR^2=4.82
2012-13	0.87 (2.99)*	0.43 (5.12)* {1.06}	16.54 (4.33)* {1.09}	0.66 [21.24]*	2.11	F=0.47 OR^2= 4.85
2013-14	0.45 (2.11)**	0.37 (3.66)* {1.11}	18.48 (4.99)* {1.11}	0.47 [13.29]*	1.99	F=0.64 OR^2= 3.21

Notes: The first row of the table represents the result for the pooled regressions, where remaining rows indicate the result of annual cross sectional regressions. The t- statistics are presented in the first bracket. * indicates significance at 1% level, ** indicates significance at 5% level, *** indicates significance at 10% level. Variance inflation factor are disclosed in the second bracket, D-W indicates the values of Durbin–Watson test statistics. F= F- Statistics, OR2- observed R- squared

Table 2: Relative Information Content Approach Regressions of Annual Stock Returns to NI Levels and Change in NI

Model 2: $R_{it} = b_0 + b_1 NI_{it} + b_2 \Delta NI_{it} + u_{it}$

Year	b_0	b_1	b_2	Adj R^2	D-W test	White test	J -TEST			
							$R_{jt}=\gamma_0+\gamma_1 NI_{jt}+\gamma_2 \Delta A_{jt}+\gamma_3+\varepsilon_{jt}$		$R_{it}=\delta_0+\delta_1 EVA_{it}+\delta_2 \Delta EVA_{it}+\delta_3+\xi_{it}$	
							Adj R^2	γ_3	Adj R^2	δ_3
Pooled	0.43 (2.85)*	0.12 (2.01)** {101}	0.76 (2.29)** {1.01}	0.17 [31.29]*	1.86	F=1.15 OR2=2.16	0.02 [3.01]	1.01 (2.61)*.	0.02 [3.06]**	0.96 (2.46)**
2002-03	1.636 (2.281)**	0.28 (0.80) {1.17}	33.45 (2.62)* {1.17}	0.25 [5.383]*	2.43	F=0.37 OR2=2.19	0.21 [3.447]**	1.04 (3.19)*	0.31 [3.634]**	0.09 (0.07)
2003-04	0.27 (2.65)*	0.25 (4.37)* {1.65}	13.14 (2.91)* {1.65}	0.72 [36.02]*	1.81	F=1.46 OR2=5.22	0.71 [23.29]*	0.09 (0.43)	0.76 [30.92]*	0.03 (0.07)
2004-05	-0.27 (-2.65)*	0.25 (4.38)* 1.65	13.14 (2.91) 1.65	0.72 [36.02]*	1.81	F=0.17 OR2=1.97	0.81 [38.48]*	0.65 (3.45)*	0.91 [86.88]*	1.04 (5.87)*

2005-06	0.69 (3.47)*	0.25 (2.5)* {1.19}	76.59 (12.54)* {1.19}	0.82 [82.84]*	2.14	F=1.13 OR2=2.54	0.85 [69.72]*	0.34 (2.87)*	0.85 [69.45]*	0.86 (10.26)*
2006-07	0.22 (1.94)*	0.64 (2.74)** {1.24}	0.84 (4.21)* {1.24}	0.86 [84.86]*	1.86	F=0.32 OR2=1.87	0.86 [56.01]*	1.09 (7.97)*	0.86 [56.76]*	0.14 (0.81)
2007-08	-0.89 (-2.27)**	0.25 (2.77)* {2.75}	7.67 (2.97)* {2.75}	0.57 [19.06]*	1.98	F=1.29 OR2=4.82	0.79 [35.74]*	0.68 (5.28)*	0.89 [65.46]*	0.91 (7.83)*
2008-09	0.92 (2.17)**	0.15 (0.60) {1.18}	53.64 (3.04)* {1.18}	0.25 [5.56]*	1.93	F=0.17 OR2=1.97	0.32 [5.25]*	0.67 (1.87)**	0.32 [5.28]*	0.78 (2.56)*
2009-10	0.72 (2.22)*	0.32 (3.34)* {1.01}	18.65 (3.38)* {1.01}	0.43 [11.05]*	2.14	F=0.65 OR2=1.56	0.41 [7.11]*	0.98 (4.25)*	0.41 [7.1]*	0.17 (0.29)
2010-11	0.55 (1.14)	0.32 (2.08)** {1.01}	7.79 (2.63)* {1.01}	0.17 [3.73]***	2.08	F=0.65 OR2=2.46	0.16 [2.74]**	0.92 (2.41)**	0.15 [2.69]**	0.68 (0.95)
2011-12	1.42 (2.67)*	0.25 (2.39)** {1.25}	77.72 (4.04)* {1.25}	0.39 [9.92]*	2.13	F=0.46 OR2=1.47	0.45 (6.46)*	1.04 (4.36)*	0.38 (6.63)*	0.62 (0.44)
2012-13	0.59 (1.98)*	1.08 (6.83)* {2.97}	-0.49 (-5.61)* {2.97}	0.82 [53.31]*	1.87	F= 1.19 OR2= 5.98	0.91 [36.49]*	0.47 (3.17)*	0.92 [37.28]*	0.76 (6.13)*
2013-14	0.87 (2.01)*	0.54 (4.63)* {3.66}	9.05 (3.52)* {4.32}	0.65 [6.54]*	2.17	F=0.68 OR2=2.85	0.57 [6.85]*	0.99 (4.87)*	0.41 [5.92]*	0.88 (2.92)*

Notes: Same as Table 1, The result of J- test are reflecedt in the last four columns, where F- values are presented within the third bracket and adjusted R^2 represented the coefficient of determination for each regression. $\hat{R}_{jt}$= estimated value of EVA, $\hat{R}_{it}$=Estimated value of NI.

Table 3: Relative Information Content Approach Regressions of Annual Stock Returns to OI Levels and Change in OI

Model 3: $R_{it} = c_0 + c_1 OI_{it} + c_2 \Delta OI_{it} + u_{it}$

Year	c_0	c_1	c_2	Adj R^2	D-W test	White test	J -TEST			
							$R_{jt}=\gamma_0+\gamma_1 OI_{jt}+\gamma_2 \Delta A_{jt}+\gamma_3+\varepsilon_{jt}$		$R_{it}=\delta_0+\delta_1 EVA_{it}+\delta_2 \Delta EVA_{it}+\delta_3+\xi_{it}$	
							Adj R^2	γ_3	Adj R^2	δ_3
Pooled	0.26 (1.75)***	0.11 (2.28)** {1.21}	4.54 (7.56)* {1.21}	0.02 [3.49]**	1.97	F=1.91 OR2=3.81	0.18 [21.19]*	0.99 (7.81)*	0.18 [21.21]*	0.59 (0.97)
2002-03	1.83 (2.34)**	0.28 (0.97) {2.83}	36.25 (5.28)* {2.83}	0.21 [3.62]***	2.01	F=1.49 OR2=7.1	0.36 [4.47]**	1.21 [2.45]**	0.22 [2.21]	0.45 [0.39]
2003-04	1.56 (1.75)***	0.33 (3.24)* {1.29}	17.83 (12.69)* {1.29}	0.89 [111.55]*	1.63	F=0.29 OR^2=1.72	0.89 [71.43]*	0.02 (0.11)	0.77 [31.47]*	0.39 (0.58)
2004-05	0.64 (2.61)**	0.34 (4.27)* {1.56}	17.87 (12.69)* {1.56}	0.89 [111.55]*	1.68	F=0.28 OR2=1.72	0.89 [72.31]*	0.52 (2.46)**	0.82 [40.78]*	0.10 (.525)
2005-06	0.22 (0.59)	0.36 (1.73)*** {1.56}	-1.08 (-0.26) {1.56}	0.01 [1.23]	1.97	F=1.23 OR^2=2.64	0.38 [8.29]*	1.03 (4.58)*	0.37 [8.24]*	-0.18 (-0.31)
2006-07	0.34 (0.95)	0.04 (0.19) {1.03}	0.26 (0.09) {1.03}	0.08 [0.02]	2.07	F=1.66 OR^2=4.22	0.51 [10.48]*	1.04 (5.6)*	0.49 [9.85]*	1.19 (0.33)
2007-08	1.16 (3.02)*	0.45 (2.12)** {1.75}	11.21 (2.14)** {1.75}	0.47 [13.31]*	2.01	F=1.59 OR2=5.34	0.81 [36.89]*	0.76 (6.44)*	0.86 [58.85]*	0.87 (7.09)*
2008-09	0.97 (1.99)**	0.33 (1.74)*** {1.09}	-54.33 (-2.05)** {1.09}	0.18 [3.89]**	2.09	F=0.22 OR^2=1.43	0.27 [4.33]*	0.98 (2.73)*	0.27 [4.33]*	0.89 (2.11)**
2009-10	1.96 (6.25)*	0.15 (2.08)** {1.01}	0.98 (0.26) {1.01}	0.17 [2.16]	2.12	F=0.64 OR2=1.65	0.17 [0.66]	0.99 (1.73)***	0.18 [0.65]	0.19 (0.04)

2010-11	1.21 (2.45)**	0.38 (1.99)** {1.06}	43.21 (3.88)** {1.06}	0.45 [12.17]*	1.95	F=1.28 OR^2=5.88	0.44 [8.04]*	1.04 (4.85)*	0.47 [9.08]*	0.39 (0.64)
2011-12	.833 (2.45)**	0.27 (1.97)** {1.11}	4.79 (9.74)* {1.11}	0.78 [47.73]*	2.11	F=0.56 OR2=1.89	0.79 [32.21]*	1.04 (10.23)*	0.77 [31.21]*	0.52 (0.64)
2012-13	1.02 (2.22)**	0.49 (2.35)** {1.11}	1.21 (5.14)** {1.11}	0.55 [18.41]*	2.02	F=.59 OR2=3.33	0.78 [31.89]*	0.89 (3.74)*	0.66 [28.82]*	0.87 (7.79)*
2013-14	0.74 (2.84)**	0.34 (4.27)* {1.75}	7.87 (12.69)* {1.75}	0.49 [14.55]*	1.98	F=0.38 OR^2=3.82	0.89 [42.81]*	0.69 (3.46)*	0.88 [40.46]*	0.20 (0.76)

Notes: *Same as those in Table 2*

Table 4: Relative Information Content Approach Regressions of Annual Stock Returns to RI Levels and Change in RI

Model 4: $R_{it} = d_0 + d_1 RI_{it} + d_2 \Delta RI_{it} + u_{it}$

Year	d_0	d_1	d_2	Adj R^2	D-W test	White test	J -TEST			
							$R_{jt}=\gamma_0+\gamma_1 RI_{jt}+\gamma_2 \Delta A_{jt}+\gamma_3+\varepsilon_{jt}$		$R_{it}=\delta_0+\delta_1 EVA_{it}+\delta_2 \Delta EVA_{it}+\delta_3+\xi_{it}$	
							Adj R^2	γ_3	Adj R^2	δ_3
Pooled	0.49 (3.31)	-0.04 (-1.37) {1.03	12.46 (2.24)** 1.03}	0.02 [3.01]***	1.76	F=0.28 OR^2=1.78	0.02 [2.76]**	0.98 (2.45)*	0.02 [2.76]**	0.99 (1.49)
2002-03	0.46 (.629)	-0.20 (-3.51)* {1.04}	34.94 [6.54]* {1.04}	0.20 [2.86]***	2.15	F=0.58 OR2=3.26	0.28 [4.54]*	0.99 (3.58)*	0.18 [1.73]	0.48 (0.36)
2003-04	0.31 (3.23)*	0.05 (9.38)* {1.19}	10.01 (2.51)** {1.19	0.77 [47.09]*	2.06	F=1.12 OR2=3.17	0.76 [30.24]*	0.05 (0.25)	0.77 [32.6]*	0.04 (1.01)
2004-05	0.32 (3.24)*	0.05 (9.39)* {5.92}	10.25 (1.98)*** {5.92}	0.77 [47.09]*	2.06	F=0.18 OR2=1.92	0.81 [38.93]*	0.55 (2.35)**	0.81 [38.79]*	0.51 (2.19)**

2005-06	0.36 (1.95)***	-0.06 (-5.97)* {2.36}	27.15 (2.61)* {2.36}	0.05 [2.53]***	2.04	F=0.56 OR^2=1.77	0.62 [20.84]*	0.58 (3.21)*	0.69 [28.19]*	0.95 (5.85)*
2006-07	0.39 (4.34)*	0.05 (12.73)* {1.24}	23.78 (2.04)** {1.24}	0.19 [2.68]***	1.85	F=0.73 OR2=3.11	0.89 [65.55]*	1.15 (8.72)*	0.88 [65.9]*	-0.22 (-1.32)
2007-08	1.47 (2.26)**	0.27 (2.08)** {8.74}	83.18 (6.71)* {8.74}	0.06 [1.89]	2.03	F=1.34 OR^2=2.58	0.73 [28.98]*	0.68 (4.63)*	0.86 [53.41]*	0.96 (6.88)*
2008-09	1.03 (2.61)*	-0.26 (-2.59)* {1.01}	25.11 (4.68)* {1.01}	0.15 [3.41]***	1.98	F=0.67 OR^2=1.55	0.31 [3.5]**	0.72 (1.76)***	0.22 [3.41]**	0.66 (1.56)
2009-10	0.44 (4.09)*	0.13 (9.15)* {1.47}	18.91 (3.78)* {1.47}	0.77 [42.54]*	2.11	F=0.63 OR^2=2.43	0.78 [28.82]*	0.98 (8.67)*	0.78 [27.78]*	0.38 (0.63).
2010-11	0.27 (2.03)**	0.03 (17.67)* {1.09}	37.64 (3.45)* {1.09}	0.22 [3.83]**	1.89	F=1.27 OR^2=3.56	0.92 [111.92]*	0.98 (17.76)*	0.93 [113.62]*	0.36 (1.52)
2011-12	0.65 (2.09)*	0.31 (10.08)* {1.01}	0.75 (0.87) {1.01}	0.49 [5.76]***	2.14	F=0.43 OR2=1.22	0.84 [37.21]*	1.04 (10.51)*	0.79 [33.74]*	0.66 (0.86)
2012-13	0.56 (2.34)*	0.15 (7.73)* {1.44}	20.88 (1.94)** {1.44}	0.39 [4.68]***	1.95	F=1.73 OR^2=5.61	0.79 [55.55]*	1.08 (7.62)*	0.68 [63.6]*	0.22 (0.52)
2013-14	1.08 (2.67)*	0.18 (9.68)* {1.21}	23.09 (3.88)* {1.21}	0.56 [23.63]*	2.08	F=0.55 OR^2=1.83	0.52 [13.29]*	1.62 (2.17)**	0.38 [4.01]**	0.56 (1.38)

Notes- *Same as those in Table 2*

Table 5: Incremental Information Content- Pair Wise Regression of NI and EVA

Model 1 $R_i = \alpha_0 + \alpha_1$ EVA$+\alpha_2 \Delta$EVA $+\alpha_3$ NI$+\alpha_4 \Delta$NI

Year	α_0	α_1	α_2	α_3	α_4	Adj R^2	D-W test	Glejser test	Wald test: $\alpha_1 = \alpha_2 = 0$
Pooled	0.41 (2.46)*	0.21 (2.42)** {1.21}	6.78 (2.78)* {1.01}	0.12 (2.06)** {1.19}	0.73 (2.19)** {1.02}	0.02 [2.34]**	1.76	F= 1.91 OR^2=1.46	F=5.22* $\chi2$ =11.25*
2002-03	1.53 (1.93)**	1.47 (2.57)** {1.1}	2.56 (0.33) {1.05}	0.34 (0.94) {1.23}	34.18 (2.51)* {1.24}	0.20 [2.69]**	2.38	F=.53 OR^2=10.2	F=2.12** $\chi2$ =6.42*
2003-04	0.38 (3.49)*	0.21 (3.03)* {4.23}	5.12 (1.89)*** {2.45}	0.14 (2.04)** {3.03}	12.97 (2.09)*** {4.73}	0.82 [31.16]*	1.95	F=1.65 OR^2=17.9	F=5.83* $\chi2$ =9.67*
2004-05	0.39 (1.85)***	0.21 (3.03)* {4.23}	5.12 (1.95)*** {2.45}	0.12 (2.07)*** {3.03}	12.97 (2.09)** {4.72}	0.87 [31.17]*	1.94	F=1.09 OR^2=11.3	F=2.72 *** $\chi2$ =4.54***
2005-06	0.91 (1.69)***	-0.03 (-0.61) {2.46}	12.45 (3.61)* {1.12}	0.01 (0.11) {2.46}	61.53 (6.76)* {4.14}	0.87 [50.07]*	2.31	F=1.54 OR^2=3.44	F=5.14* $\chi2$ =12.86*
2006-07	1.06 (3.85)*	0.34 (2.22)** {1.49}	1.76 (1.89)*** {1.08}	-0.42 (-13.5)* {1.28}	10.57 (4.16)* {1.76}	0.88 [54.81]*	1.95	F= 1.05 OR^2=8.91	F=2.63*** $\chi2$ =5.24***
2007-08	-0.47 (-1.89)***	0.21 (2.14)** {2.03}	18.54 (7.88)* {1.05}	0.68 (2.33)** {13.81}	11.47 (3.39)* {16.67}	0.76 [49.11]*	2.08	F= 1.56 OR^2=17.5	F=31.95* $\chi2$ =63.9*
2008-09	1.05 (2.58)**	0.01 (0.24) {1.02}	46.74 (1.83)*** {1.17}	0.55 (2.45)* {1.22}	-40.78 (-2.21)** {1.37}	0.29 [3.78]*	2.07	F=0 .77 OR^2=5.57	F=1.69 $\chi2$ =3.38

2009-10	0.25 (1.17)	0.67 (3.47)* {1.23}	0.94 (0.21) {1.31}	0.29 (2.81)* {1.16}	19.14 (3.05)* {1.19}	0.38 [5.18]*	2.19	F= 1.33 OR^2=5.28	F=0.11 $\chi2$ =.22
2010-11	1.66 (3.41)*	0.46 (2.76)* {1.84}	23.89 (3.84)* {1.11}	0.002 (.005) {1.84}	7.33 (2.38)* {1.03}	0.43 [6.48]*	1.94	F= 1.38 OR^2=6.83	F=3.96*** $\chi2$ =7.84**
2011-12	1.57 (2.53)**	0.23 (2.91)* {1.27}	15.34 (5.32)* {1.04}	0.38 (3.09)* {1.51}	79.52 (3.95)* {1.28}	0.38 [5.65]*	2.12	F= 0.66 OR^2=2.86	F=8.35* $\chi2$ =17.54*
2012-13	1.27 (4.15)*	0.42 (2.68)** {1.37}	1.82 (1.96)*** {1.15}	0.42 (4.51)* {1.75}	21.54 (5.16)* {1.52}	0.88 [53.76]*	1.89	F= 1.11 OR^2=6.96	F=4.53** $\chi2$ =9.06**
2013-14	1.02 (2.41)**	0.33 (2.48)** {2.52}	10.13 (2.99)* {1.02}	0.36 (2.91)* {2.26}	55.58 (5.79)* {1.87}	0.83 [49.18]*	2.01	F=1.36 OR^2=3.24	F=5.88* χ^2=12.06*

Notes: *Same as Table 2. Glejser test is used to find out the heteroscedasticity.*

Table 6: Incremental Information Content- Pair Wise Regression of OI and EVA

Model 2 $R_j = \beta_0 + \beta_1$ EVA$+\beta_2 \Delta$EVA $+\beta_3$ OI$+\beta_4 \Delta$OI

Year	$_0$	β_1	β_2	β_3	β_4	Adj R^2	D-W test	Glejser test	Wald test: $\beta_1 = \beta_2 = 0$
Pooled	0.27 (1.71)***	0.03 (1.75)*** {1.06}	12.08 (4.76)* {1.01}	0.11 (2.19)** {1.05}	4.51 (7.43)* {1.02}	0.17 [15.93]*	1.87	F= 1.69 OR^2=4.55	F=4.88* $\chi2$ =9.76*
2002-03	1.76 (2.08)**	2.65 (2.79)** {1.34}	6.16 (1.77)*** {1.03}	0.01 (0.04) {2.94}	45.11 (4.38)* {3.52}	0.67 [10.49]*	1.99	F=2.11*** OR^2=19.5	F=4.19* $\chi2$ =8.23*
2003-04	0.46 (1.92)***	0.07 (1.57)*** {7.44}	3.56 (2.06)** {1.31}	0.02 (0.68) {1.31}	18.82 (5.57)* {8.27}	0.901 [62.58]*	1.78	F=2.9 OR^2=18.4	F=7.51* $\chi2$ =15.03*

2004-05	0.47 (2.52)*	0.79 (3.68)* {5.29}	3.56 (2.07)* {2.08}	0.02 (0.68) {8.27}	18.82 (5.57)* {4.85}	0.91 [62.58]	1.78	F=1.51 OR^2=17.3	F=7.52* χ^2 =15.03*
2005-06	0.74 (3.23)*	0.44 (5.51)* {1.02}	5.66 (0.79) {1.03}	0.17 (0.89) {1.32}	13.78 (4.56)* {1.37}	0.53 [8.45]*	2.14	F=0.71 OR^2=1.22	F=15.97* χ2 =31.96*
2006-07	0.27 (1.85)***	0.28 (1.87)*** {5.17}	1.74 (2.54)* {1.05}	0.21 (0.62) {7.34}	1.06 (3.92)* {6.22}	0.86 [44.41]*	1.93	F= 0.47 OR^2=1.34	F=2.37*** χ2 =4.75***
2007-08	-0.54 (2.52)*	0.25 (3.36)* {1.55}	19.54 (7.63)* {1.06}	0.32 (2.91)* {1.78}	-11.47 (-3.46)* {2.31}	0.86 [40.94]*	2.33	F= 1.05 OR^2=14.9	F=33.91* χ2 =67.81*
2008-09	1.08 (2.41)**	0.21 (1.75)*** {1.12}	65.71 (2.67)* {1.01}	0.15 (1.68)*** {1.22}	-48.4 (-1.99)** {1.11}	0.23 [3.11]**	2.09	F=0 .28 OR^2=3.08	F=3.57** χ2 =7.15**
2009-10	0.49 (1.91)**	0.27 (2.22)** {1.09}	3.29 (0.49) {1.59}	0.73 (5.18)* {1.03}	0.19 (0.04) {1.48}	0.28 [2.47]	2.02	F= 1.35 OR^2=3.09	F=1.82 χ2 =3.57
2010-11	0.52 (2.01)**	0.79 (3.41)* {1.13}	0.42 (0.02) {1.31}	-0.46 (-2.31)** {1.22}	41.62 (3.27)* {1.49}	0.45 [6.06]*	1.74	F= 1.15 OR^2=1.76	F=5.98** χ2 =14.67*
2011-12	0.89 (2.39)*	0.18 (1.79)*** {1.17}	9.24 (1.94)*** {1.05}	0.35 (2.67)** {1.16}	4.91 (10.15)* {1.06}	0.79 [26.31]*	2.19	F= 0.98 OR^2=4.07	F=3.43*** χ2 =6.46**
2012-13	0.82 (3.65)*	0.66 (6.01)* {1.12}	6.48 (1.05) {1.27}	0.25 (2.43)** {1.42}	10.96 (3.88)* {1.08}	0.59 [8.63]*	2.11	F=0.61 OR^2=1.18	F=14.76* χ2 =30.32*
2013-14	1.16 (3.51)*	0.56 (2.98)** {1.19}	9.74 (2.07)*** {1.73}	1.12 (4.36)* {1.58}	5.28 (12.62)** {1.01}	0.44 [7.01]*	2.09	F=0.19 OR^2=2.55	F=9.54* χ2 =19.25**

Notes: *Same as those in Table 4*

Table 7: Incremental Information Content- Pair Wise Regression of RI and EVA

Model 3 Rj= $\gamma_0+\gamma_1$ EVA+γ_2 ΔEVA +γ_3 RI+γ_4 ΔRI									
Year	$_0$	γ_1	γ_2	γ_3	$_4\gamma$	**Adj R^2**	**D-W test**	**Glejser test**	**Wald test: $\gamma_1=\gamma_2=0$**
Pooled	0.48 (3.21)*	0.06 (2.26)** {1.13}	3.99 (2.07)** {1.01}	-0.003 (-1.21) {1.09}	12.73 (2.45)** {1.06}	0.02 [2.06]***	1.79	F= 0.31 OR^2=4.26	F=2.82*** $\chi2$ =7.43**
2002-03	1.59 (2.16)***	0.27 (0.75) {1.96}	8.3 (1.97)*** {1.19}	0.21 (3.29)* {1.28}	10.84 (2.77)* {2.12}	0.47 [6.34]*	2.21	F=1.65 OR^2=17.9	F=5.83* $\chi2$ =9.67*
2003-04	0.24 (2.53)*	0.19 (2.31)** {6.21}	-0.46 (-0.19) {1.1}	0.03 (1.97)** {7.31}	12.8 (4.07)* {1.58}	0.81 [28.01]*	2.08	F=0.21 OR^2=5.15	F=2.66*** χ^2 =5.32**
2004-05	0.23 (2.51)*	0.17 (2.25)** {6.24}	-0.48 (-0.21) {1.19}	0.02 (1.97)** {7.31}	2.84 (0.39) {1.58}	0.80 [27.53]*	2.09	F=0.88 OR^2=7.45	F=2.68*** χ^2 =5.52**
2005-06	-0.09 (-2.09)**	0.24 (2.49)* {1.56}	.90 (0.53) {1.98}	0.05 (21.05)* {1.98}	17.89 (9.84)* {2.46}	0.98 [37.73]	2.43	F= 1.45 OR^2=3.77	F=5.65* χ^2 =13.76*
2006-07	0.77 (1.81)***	0.16 (2.31)** {3.42}	0.20 (.31) {1.02}	0.55 (8.28)* {3.86}	27.23 (4.19)* {1.25}	0.87 [47.41]*	1.98	F= 0.18 OR^2=4.67	F=2.59*** χ^2 =3.79***
2007-08	0.44 (2.11)**	0.26 (2.91)* {4.83}	17.85 (6.93)* {5.38}	0.49 (3.97)* {1.63}	36.07 (5.04)* {5.78}	0.82 [38.93]*	2.16	F= 1.56 OR^2=17.5	F=24.11* χ^2 =48.22*
2008-09	1.14 (2.75)*	0.36 (5.67)* {1.05}	50.08 (1.78)*** {1.33}	-0.03 (-1.73)*** {1.31}	-.3.04 (-.05) {1.15}	0.18 [2.57]***	1.98	F=0 .53 OR^2=10.1	F=6.04* χ^2 =18.63*
2009-10	0.47 (3.84)*	0.57 (3.96)* {1.42}	1.01 (0.34) {1.23}	0.02 (8.21)* {1.11}	22.46 (3.27)* {1.49}	0.73 [19.9]*	2.06	F=0.73 OR^2=3.18	F=0.19 χ^2 =0.39

2010-11	1.41 (3.56)*	0.47 (3.82)* {5.41}	12.43 (3.28)* {1.1}	0.07 (17.27)* {1.14}	35.03 (1.94)** {5.21}	0.93 [81.69]*	1.83	F= 0.87 OR²=3.7	F=4.33* χ^2 =12.67*
2011-12	0.83 (2.37)**	0.01 (0.42) {1.11}	8.88 (1.95)*** {1.09}	0.03 (10.28)* {1.07}	18.71 (3.99)* {1.08}	0.79 [27.02]*	2.16	F=0.91 OR²=3.81	F=4.48* χ^2 =12.89*
2012-13	0.65 (2.29)**	0.31 (2.32)* {1.87}	14.64 (5.63)* {2.27}	0.38 (3.49)* {1.93}	16.57 (4.64)* {3.27}	0.89 [40.33]*	2.22	F= 0.76 OR²=5.05	F=5.26* χ^2 =11.09*
2013-14	1.18 (3.11)*	0.38 (5.82)* {1.18}	23.08 (2.85)** {1.42}	0.07 (2.73)** {1.72}	13.56 (4.08) {1.01}	0.88 [38.21]*	1.99	F=0 .76 OR²=9.18	F=4.98* χ^2 =10.06*

Notes: *Same as those in Table 4*

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Revised Draft Model GST Law –Key Concerns from Real Estate Industry Standpoint

Pratik Pankaj Shah

Abstract:

Goods & Service Tax (GST) is a momentous reform for Indian economy by developing a common Indian market and reducing the cascading effect of tax on the cost of goods and services. It will impact the Tax Structure, Tax Incidence, Tax Computation, Tax Payment, Compliance, Credit Utilization and Reporting leading to a complete overhaul of the current indirect tax system. It is, therefore, important that the design of proposed GST law should be such that it promotes investments and growth and enable the real estate developer to pass on benefits to the end consumer. Recently, a revised version of the draft model Goods and Service Tax (GST) Act, Integrated GST Act has been released by the Government of India. In addition, Government of India has also released Goods and Service Tax (Compensation to the States for loss of revenue) Bill. It seems that the revised draft Model Goods and Service Tax (MGST) has taken into consideration numerous industry representation made to them and endeavored removing all the possible anomaly, which was initially created by the earlier Model GST law. Even though construction services has been taxable under VAT and service tax for a decade or so, the industry is still plagued with uncertainty on key basic issues that remains unsolved leading to intense litigation, especially on issues like GST rates, valuation, availability of input tax credit etc. In this article, key concerns faced by the real estate industry due to revised draft model GST law have been outlined.

Key Words:

Goods and Service Tax (GST) Act, GST Council, Real Estate Industry

I congratulate NDA led Government upon successful passage of the landmark Constitution Amendment Bill in both the houses of Parliament which is a great step in pursuit of making India an attractive investment destination as well as furthering the cause of 'ease of doing business in India'. Slowly but surely India is being looked at in a new light due to this economic reform, by the rest of the world.

GST is a landmark reform which will have a lasting impact on the economy and on the businesses. It is, therefore, important that the design of proposed GST law should be such that it promotes investments and growth and enable the real estate developer to pass on benefits to the end consumer.

Recently, a revised version of the draft model Goods and Service Tax (GST) Act, Integrated GST Act has been released by the Government of India. In addition, Government of India has also released Goods and Service Tax (Compensation to the States for loss of revenue) Bill. The revised drafts would be taken up for approval in the GST Council meeting

scheduled for 2 and 3 December.It seems that the revised draft Model Goods and Service Tax (MGST) has taken into consideration numerous industry representation made to them and endeavored removing all the possible anomaly, which was initially created by the earlier Model GST law.

Even though construction services has been taxable under VAT and service tax for a decade or so, the industry is still plagued with uncertainty on key basic issues that remains unsolved leading to intense litigation, especially on issues like GST rates, valuation, availability of input tax credit etc.

In this article, I have outlined below key concerns faced by the real estate industry due to revised draft model GST law.

1. Increase in tax rate

The Government had appointed a Committee headed by the Chief Economic Advisor, Ministry of Finance, Dr. Arvind Subramanian, inter alia, with the following terms of reference:

(a) The Committee may recommend possible tax rates under GST that would be consistent with the present level of revenue collection of Centre and States.

(b) While recommending GST rates the Committee may develop a dynamic model to assess the impact of the following parameters on the tax rates viz. expected levels of growth of economy, different levels of compliance and broadening of tax base under GST.

(c) Analyse the sector-wise and State-wise impact of GST on the economy.

The Committee has since issued its "Report on the Revenue Neutral Rate and Structure of Rates for the Goods and Services Tax dated 4 December 2015 wherein a three-tier rate structure is recommended with some essential goods proposed to be taxed at a lower rate of 12%; so-called demerit goods such as luxury cars, aerated beverages, pan-masala and tobacco products to be taxed at a higher rate of 40%; and all remaining goods at a standard rate of 17-18%.

With the passage of Real Estate (Regulation and Development) Bill, 2016 and the growing need for commercial and residential properties, it is expected that the real estate sector may witness a considerable growth in the near future. This bill has been passed with a measure to bring in increased transparency in the sector and protect consumer interest. As per the intention of Government to provide low cost housing to the public, Governments are continuously coming with new schemes and trying to achieve the target of reducing the impact of indirect taxes on real estate sector.

Currently, many states don't have VAT implications on the sale of flats and many states have composition scheme of lower rate of tax for charging VAT on sale of flats. Thus, it is imperative to continue with such lower rate / exemptions under GST to ensure that these constructed houses are available to the end customersin those respective region at reduced prices under GST regime.

The higher cost burden of increase in tax rate will have a direct negative impact on the public at large in India. A high GST rate will be unviable for the Indian economy leading to significant inflationary pressuresand affect consumer sentiment.

It is also pertinent to note that the real estate industry contributes about 7.8% to India GDP* and is the second large employment generator after the IT industry. Any adverse impact on such sector could result in economic adversity in the economy of the country.

2. To Liberalize input credits for levy of GST

Most of the real estate developer rendering construction services currently pays service tax after availing abatement, as prescribed under Notification No. 25/2012- ST dated 20 June 2012. The abatement under such notification is made available subject to the fulfilment of the condition that the output service provider would not be allowed to avail CENVAT Credit of excise duty paid on input/(s), used in providing construction of complex services. However, apart from normal restrictions as to availment of credit, there are no other sector specific restrictions posed on availment of CENVAT Credit of service tax paid on input services used for providing construction services.

Similarly, real estate developers generally choose to pay VAT,

especially in the state of Maharashtra, under the 'Composition Scheme' for sale of under-constructed flats to the buyers. The Developers paying VAT under such scheme are not eligible for input tax set-off of VAT paid on inputs used in construction activity.

One of the main principles of GST is the fungibility of credit which seems to unfortunately elude the Real Estate Sector as the model GST law prescribes negative list of supplies of which Credit would not be available which inter alia includes the following;

- *Section 17(4)(b) - supply of goods and services, namely,*

  (i) food and beverages, outdoor catering, beauty treatment, healthservices, cosmetic and plastic surgery except where such inwardsupply of goods or services of a particular category is used by aregistered taxable person for making an outward taxable supply ofthe same category of goods or services;

  (ii) membership of a club, health and fitness centre,

  (iii) rent-a-cab, life insurance, health insurance except where theGovernment notifies the services which are obligatory for anemployer to provide to its employees under any law for the timebeing in force; and

  (iv) travel benefits extended to employees on vacation such as leave orhome travel concession.

- *Section 17(4)(C)- works contract services when supplied for construction of immovable property, other than plant and machinery, except where it is an input service for further supply of works contract service;*

- *Section 17(4) (d) Goods or services received by a taxable person for construction of animmovable property on his own account, other than plant and machinery,even when used in course or furtherance of business*

The real estate developer incurs various expenses such as sales promotion and marketing activity etc. during site visit of the buyer of the flats. Though such expenses are being incurred in connection with carrying out business activity, the GST credit would not be available on the same as those services were personally consumed by the employees.

In addition to above, in the business of real estate developers, it is familiar practise of construction of mall by the developer themselves and letting it out subsequently, which will be taxable under the taxable category of 'renting of immovable property services'. During construction phase, the developer of real estate receives works contract services from numerous sub-contractor. Due to aforementioned restriction on input tax credit, the real estate developer might not be able to take input tax credit, hence, resulting in cost of letting constructed property.

Non availment of credit of tax paid on inputs, capital goods and input services would be a huge setback for real estate sector as the same would be added to the overall cost, thereby increasing the total value of property sold.

3. No separate valuation method for real estate developer

In the current indirect tax regime, each state has multiple valuation mechanism with respect to ascertaining the actual value of goods transferred during the execution of works contract and provision of service. There are methods prescribed under respective statutes, which are used for ascertaining the value of property sold and levy of service tax and VAT in each state.

It is expected in the GST regime that need for valuing the contract for the purpose of service tax and VAT using various methods such as abatement and composition could be negated under GST; as a single tax will be levied under GST on entire contract value. Further, the valuation rules specified under the revised draft MGST law is currently silent on valuation mechanism,especially deduction on account of land cost, for levy of GST.

With the introduction of GST legislation, it is understood that the cascading effect would get omitted. As per the information available in the public domain, it is clearly understood that stamp duty would not be subsumed under GST purview and

would continue to be levied as that under current legislation as per entry 63 of Article 246 of the constitution of India. This levy creates cascading effect on execution of various agreement/ contract for sale/ purchase of land/ property.

On a separate note, GST would be levied on transaction value, thus, in case of sale of under-constructed flat, the transaction value could be 'agreement value', which is to be payable by the buyer of the under-constructed property to the real estate developer. In case buyer enters in agreement to sale just before a day of receipt of completion certificate from the relevant municipal authority by the real estate developer would attract GST levy in toto irrespective of the fact that the developer was constructing the said flat for themselves. This could be treated as 'self-supply', which does not attract GST levy. Even, the larger bench of **Apex Court of India**, in case of Larsen & ToubroVs. State of Maharashtra has requested the state government of Maharashtra to introduce separate valuation methodology for sale of under-constructed flat. Based on the decision of apex court of India, the State Government of Maharashtra introduced new proviso to Rule 58 wherein reduction in contract price was mentioned basis the slab where the agreement to sale got registered. Similar provision is absent in revised draft MGST law. This would lead to unnecessary increase in GST levy on sale of under-constructed flats during GST regime.

4. Stamp duty not subsumed in proposed GST law

Despite the intention of introducing GST in India was to become 'one country, one tax' regime, it seemed that such intention will not be fulfilled at least in the days to come as state taxes like stamp duty was not proposed to be subsumed in GST law.

Thus, it would unnecessarily lead to increase of flat cost in the hands of buyer as they would end up paying GST and stamp duty on the agreement to sale executed for sale of under-constructed property. Alternatively, the Central Government could direct respective state government to introduce credit mechanism in state stamp duty legislation to avoid cascading effect on the agreement executed.

During the next article, we would see other key issue being faced by the real estate industry as per revised draft model GST law.

Valuation of Patent: A Classification of Methodologies

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Manas Kumar Sanyal

Abstract

In the modern days business is centred on technological development, with patents recognised as valuable assets. These are transferable in nature; hence it is necessary to determine their fair market price, thus valuation. Worldwide several methods exist for determination of financial worth of patents. After a review of relevant literature like serious books, journals, newspaper articles, whitepapers, and websites, it has been found that there are plenty of methods of patent valuation. These methods are either outcome of academic research or they are proprietary assets of specialist firms involved in patent valuation. Some of these models are adopted for valuation, while others remain stand-alone. The existence of such large number of methods is like a jungle, where the practitioners and academic researchers find themselves lost. In this paper an attempt has been made to map this jungle, through presenting a classification of the existing methods. The review of a large number of relevant documents given confidence, that the main approaches have been captured. The existing methods are classified into two broad groups' viz. praxis models and academic models, indicating their advantages and disadvantages.

Key Words:

Intellectual Property, Patents, Patent Valuation

Introduction

A patent is a set of exclusive right granted by a sovereign state to an inventor or assignee for a limited period of time in exchange of detailed public disclosure of an invention (WIPO,2008) and grants right to restrict others. The first patent was granted in 1641 by Massachusetts General Court. Restricting power of patents keeps others away for imitating, thereby defending business. A firm having more employees with registered patents has the propensity to command business (Cortada, 1998). Patents are now recognised as transferable assets, possessing significant financial value. Patents being recognised as asset require determination of fair worth for transfer (purchase and sale), as collateral for securing finance, generating income for the firm in the form of royalty or for disclosure in the financial statements (International Accounting Standards-38 (1998) on Intangible Assets). Thus there arose a need of a model to determine fair market price for patents (Bodie, 2009). The driving force for the development of the patent valuations methods is a sound patent management system, protection for infringement, measuring corporate performance, taxation and making proper justification for stock prices. The challenges and opportunities for patent valuation attracted attention of academic researchers and practitioners, opening a new domain of research directed towards developing a methodology for patent valuation. To meet the need of the above, various researchers and valuation firms got themselves involved in patent valuation. A search on Google revealed names of twenty two (22) such valuation experts firms and institutes, and worldwide there may be

more which are beyond access.

Patents are unique assets having differing impacts in different hands, and calls for valuation only by specialists (Kelly, 2011), as patent valuation is a tough and challenging task. Patent possess certain special characteristics that creates problem to its valuers. These are in the form of its intangible nature, each one in unique. Moreover, there are risk of infringement, risk of obsolescence and risk of invalidity. Therefore, the valuation experts and researchers need to keep in mind the probable ways to tackle the above obstacles while developing an objective valuation model. There are many methods of patent valuation, each has its own uniqueness and limitations, these methods co-exist in a clutter which is like a jungle. This makes the reader / practitioner / users wonder which method to select under an existing situation to get the best result.

Objective

Through this article an attempted has been made to map this jungle through presenting a classification of these methods and highlighting their advantages and disadvantages.

Methodology

In this article the technique of literature review has been adopted to explore and collect relevant document relating to patent and their valuations. Sources like serious books publishing research outcomes, research journals, newspapers, electronic databases and websites has been explored. Exploration through abstract and keyword search of e-database like Emerald provided twelve (12), Science Direct (ELSEVIER Scopus Database) provided twenty nine (29), Jstor database identified five (5), Springer Journal Archives provided three (03) relevant documents and research papers relating to patents and their valuations along with many other irrelevant ones. Moreover search on Amazon, exploration of National Library of India, American Library, British Council Library identified relevant books on patent valuation methodologies. Kolkata Patent office and their website have been visited and references of whitepapers and promotional material of valuation providers are taken. Beyond these, we used our experience and personal sources to locate additional techniques. The collection and exploration of a large number of relevant documents has given confidence about capturing the main approaches. Through an initial review of these literatures the important ones were shortlisted for further detailed analysis; these are referred in their appropriate places.

Analysis

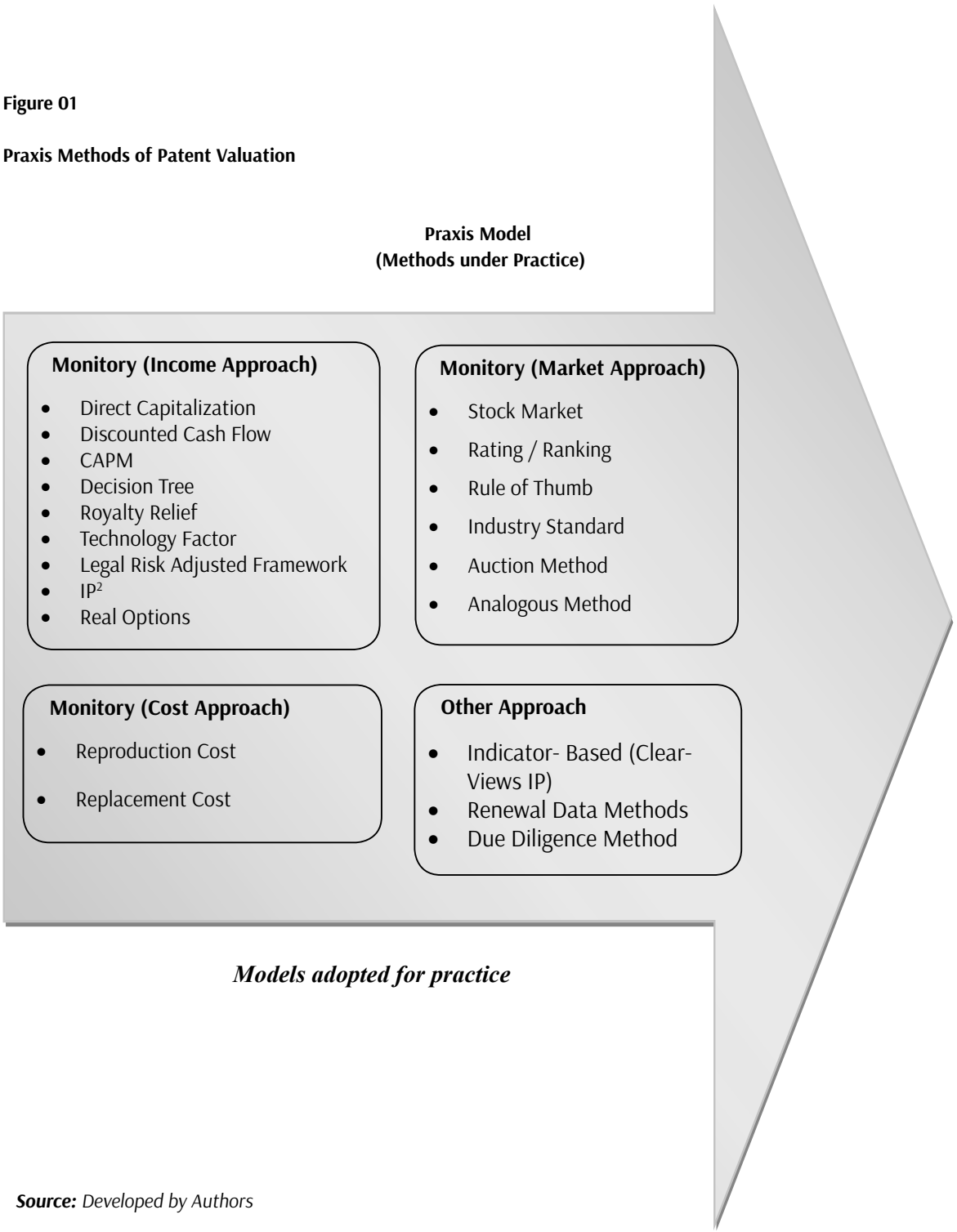
The depth study of the documents shortlisted was conducted to summarize the different methods and bring to light the working methodologies along with their salient features, benefits and disadvantages. The existing valuation methods are classified into two broad groups-viz. Praxis Methods and Academic Methods.

Praxis Methods

These methods find their origin with practicing firms and patent attorneys. The members of the group are shown in the Figure 01 presented below;

Figure 01

Praxis Methods of Patent Valuation



Source: *Developed by Authors*

The deeper analysis and the associated classification show that the member methods can be further classified as:

- Monetary methods
- Other methods

Monetary Methods: These methods can be further sub grouped on the basis of their operating approaches viz. Cost approach, Market approach and Income approach. The member methods are critically analysed below.

a. Cost approach: In this approach patents are valued on the basis of reproduction cost (i.e. all cost associated with purchase or development of a replica of patent under consideration) and replacement cost (i.e. cost to be incurred to obtain an equivalent patent asset having similar use/or function). In both of these methods, the present prices are considered (Anson, 2015). Cost heads include, cost of .research and development, promotional expenses, management time, legal licensing and registration fees, and opportunity cost (if any). The method also takes into account obsolescence costs like, technological, economical and functional obsolescence. The Table 01 below shows a comparative analysis of the various approaches under this method indicating their advantages and disadvantages.

Table 01

Comparison of Cost Approach (Praxis) Methods of Patent Valuation

Variants	Methodology	Advantages	Disadvantages
Reproduction Cost (Drews, 2011)	This method contemplates the construction of an exact replica of the asset (i.e. patent).	Estimates the future cost of producing a similar type of assets	1. Does not account for changes in technology or factors relevant for the assets 2. No allowance for the future benefits that might accrue from the patent
Replacement Cost (Drews, 2011)	Contemplates the cost incurrent to recreate the functionality or the utility of the patent, but in a different form in comparison to the subject patent.		

Source: *Developed by Authors*

b Market approach: In these subgroups, the member methods estimate patent value by taking reference of open market values, where there is evidence of prices, at which similar assets with similar uses have changed hands (Anson, 2015). If the asset is unique in nature, then comparison is done on the basis of utility, technological specificity and property. Data is collected from different sources like, companies annual reports, specialized database of royalty rates, stock price, legal decisions, pure patent deals (Bulakowski, 2014). The Table 02 below shows a comparative analysis of the various approaches under this method indicating their advantages and disadvantages.

Table 02

Comparison of Market Approach (Praxis) Methods of Patent Valuation

Variants	Methodology	Advantages	Disadvantages
Stock market Method (Cockburn, 1987)	Estimates the patent value on the basis of movement of the stock market value.	1. Supports estimating the volatility of the patent values 2. Useful in option based valuation method	Reflect an extremely dispersed distribution of the values of patented ideas
Rating/ Ranking Method (Razgaitis, et.al, 2007)	Value estimated through - 1.Identification of a. criteria relating to the patent right b. scoring system; c. Weight factors. 2. Assigning scores or value to the criteria by experts and multiplying by weights. 3. Adding up of weighted score to determine the rated/ranked score	Useful in internal patent management decisions e.g. to file or not to file for certain inventions, extending patent rights abroad, renewing or abandoning patents.	1. Identification of the valuation criteria and determination of weights, factors are arbitrary and subjective. 2. Lack in strong empirical support.
Rule of Thumb (Goldscheider, et.al, 2002)	Licensee pay a royalty rate equivalent to 25 per cent of its expected profits for the product that incorporates the IP at issue.	1. Can be the basis (principle) of early agreement 2. Appropriately tied to profitability 3. Widely accepted	1. Have the effect of rewarding licensee business inefficiency. 2. There can be significant year-to-year variability in available income statement numbers.
Industry Standards	Here the patent is valued first by referring to the industry it belong and selecting the royalty rate that is specified (Razgaitis, et.al, 2007)	1. The values used as the basis are based on the market. 2. No calculations are required	Published information is inevitably dated, and such datedness could have a material effect on the present value of a similar deal.

Variants	Methodology	Advantages	Disadvantages
Auction Method (Jarosz, et.al, 2010))	The patent is put to sale in a hypothetically perfect auction market with several well aware potential buyers, the price of the patent would be determined through bidding.	The fair value is expected to be determined by the willing seller and willing buyers	The use of auctions is much more complicated than a simple cash payment.
Analogous Method (American Institute of CPA)s	Here a comparison between the observable price for a comparable object and value sought for the patent is done.	Logical method permits comparison between the observable price for a comparable object and value sought for the patent	1. Adequate data from comparable transactions can be rarely accessed, 2. Necessary to provide a detailed background and reasoning for the choice of comparable transaction.

Source: *Developed by Authors*

c. Income approach: Under this approach, the patent is valued on the basis of the future benefits that would accrue from the concerned patent and discounted by an appropriate discount rate (Ahya, 2005).

The following Table 03 explores the various methods under this category.

Table 03

Comparison of Income Approach (Praxis) Methods of Patent Valuation

Variants	Methodology	Advantages	Disadvantages
Direct capitalization (ICAI,2007)	Based on estimation of appropriate measure of economic income for a period, and then dividing that measure by an appropriate investment rate of return known as the capitalization rate.	Accounts for time and Uncertainty	The discount rate does include the varying risk of patents over its life.
Discounted cash Flow (Collan, 2011)	Based on projection of appropriate measure of cash flows for several discrete periods into future and then converting into the present day applying discounting factor.		
CAPM (Meng, 2008)	Estimating the discounting factor and multiplying the risk premium with the asset specific beta and the result is added to the risk free rate.		

Variants	Methodology	Advantages	Disadvantages
Decision Tree Analysis (Chiu, 2007)	Based on consideration of the various possibilities i.e. at various stages of the life of the patent if it could be allowed to lapse or abandon. Subsequent to the initial application, there is also option to expand the patent family making corresponding foreign applications.	Accounts for flexibility	Discount rate problem. The rates used need to be appropriate to include the risk at each stage and for each type of decision, in practice a constant rate is used.
Real Options (Bloom, 2002)	Based on theories of market behaviour, designed to explicitly incorporate and analyze risk and uncertainty associated with real assets. Applies financial options theory to quantify the value of intellectual property. The two variants are Binomial Method and Black-Scholes Method	Considers the changing risk of the patents during its life span	Variance estimation is difficult. Under Black-Scholes method it is assumed that there are no interim payments while the cash flows are expected over the patents life. Difficult to forecast expected cash flows from the patent.
Royalty Relief Method (Hagelin, 2002)	Based on the licensing fee the company would have to pay if it did not own the patent. This method involves discounting of the cash flow i.e. estimated net sales multiplied by the estimated royalty rate minus fiscal charges	Eliminates the intrinsic difficulty of estimating the profitability and risk differentials	As patents are for unique features of the product the appropriate royalty rates are difficult to find (Lee, et.al. [a] 2016)
ip²(www.neifeld.com) Developed by the German Patent Attorney. Association.	Based on Uses the license analogy and the profit approach. Economic Value of the patent=Cumulated Discounted Estimated Net Sales (CDEN) over the expected Product Life Cycle (PLC) multiplied by the royalty factor (RF)	Discount factors reflecting legal risks associated with the validity of a patent and its freedom-to-operate.	Based on cash flow which is difficult to forecast.
Technology Factor (Hagelin, 2002)	An upper limit of possible income with patented technology is estimated. This estimation is adjusted by competitive attributes in order to arrive at the estimated income.	Simple, structured and easy process	Does not provide a quantitative means for determining the incremental cash flow attributable to a technology.

Variants	Methodology	Advantages	Disadvantages
Legal Risk-Adjusted Valuation Framework (Flammer, 2014)	The patent value is estimated by the formula- Patent value = (risk-free patent value)*(1 – (discount)*(impact))	Considers Synergistic portfolio discounts, Information asymmetry factors.	Discount rates become a secret formula for the valuation. Concealment, deceit, incomplete communication, or information too difficult or too costly to obtain are all hazards and this can shift the economic analysis.

Source: *Developed by Authors*

Other Methods: These are other relevant methods used for valuing patents but not included above. These methods are classified below in Table 04 below:

Table 04

Comparison of Other (Praxis) Method of Patent Valuation

Variants	Details	Advantages	Disadvantages
Renewal data method	Estimates patent value from patentees' point of view, from patent renewal data as a way of measuring patentees' assessment worth.	1. Aims at the value of the patent alone 2. Better valuation of potential opportunities, example licensing opportunities	Due to some of the organizational bias related reasons is an overestimate of the true value.
Due Diligence Method	Identification of relevant facts affecting patent value and assessing it with technology that the patent protects. (Munari, et.al. 2011)	Gives information relating to the maturity of the technology, existence of the competing products/technologies, barriers of penetration of the technology to market.	Requirement of a thorough understanding and assessment of the patent claims which is sometimes difficult in critical cases.

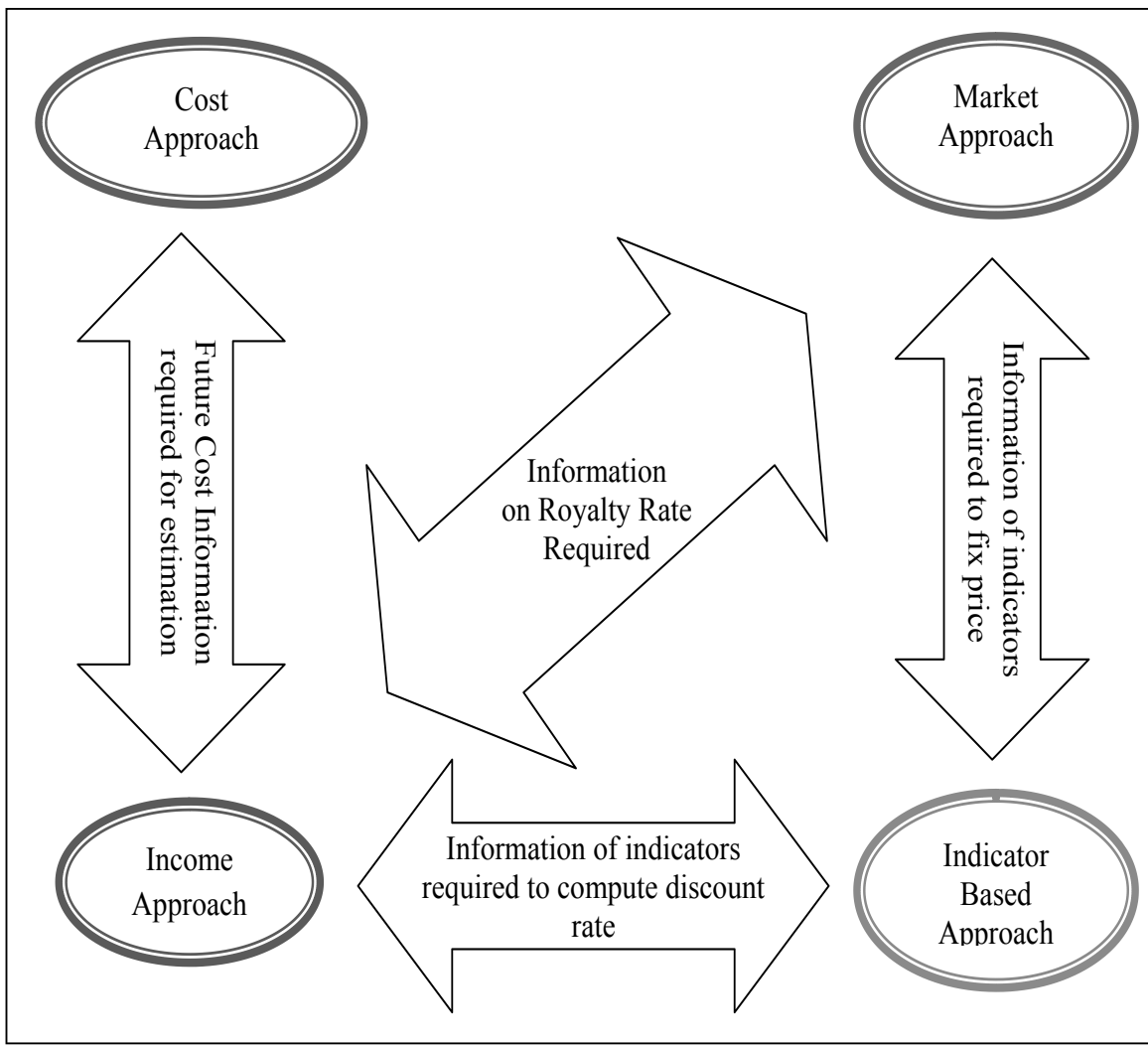
Source: *Developed by the Authors*

Interrelationship between the Methods

The interrelations between the approaches which are analyzed, these relationships are depicted by the following Figure 2.

Figure – 05

Interrelationship between the Approaches

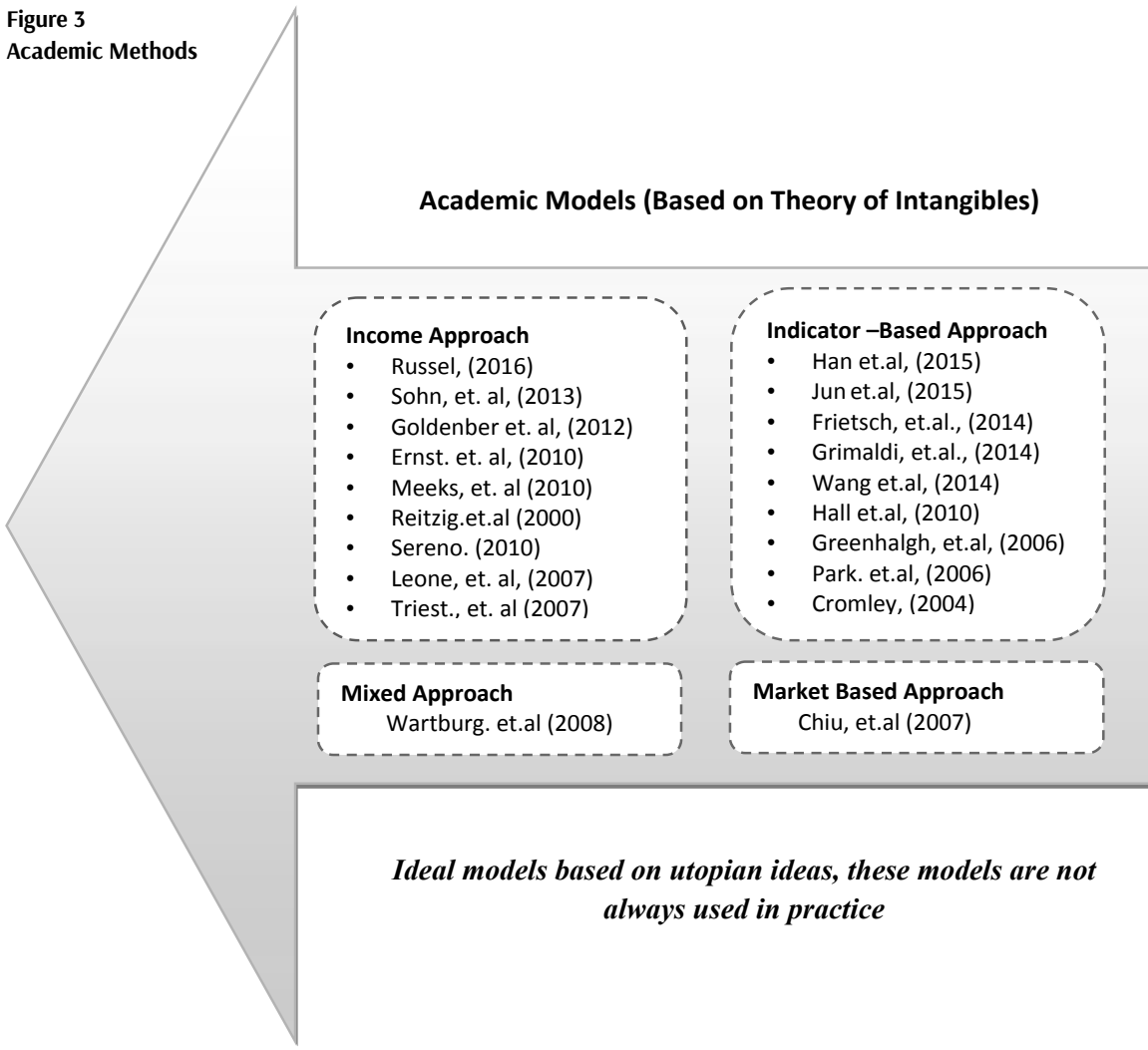


Source: *Developed by Authors*

Academic Models

The various methods as recommended by the valuation experts are explored and their advantages and disadvantages are shown in the earlier discussion, these bring in major obstacle in determining the fair market price of patents. Therefore to suggest improvement the academic researchers developed certain models, these are called academic models. Information about these models are of patent valuation has been obtained from academic literatures like books publishing research outcomes, research journals. These are reviewed and categorized according to their approaches four sub groups viz. Income approach, Indicator-based Approach, Mixed approach and Market approach according to their working methodology. A comparative analysis of their advantages and disadvantages has also been recorded. The members of the group are shown in the Figure 03 presented below;

Figure 3
Academic Methods



Income approach

Under this classification the income approach there are nine approaches, these are described in the Table 05 presented below

Table 04
Comparison of Income Approach (Academic) Methods of Patent Valuation

Source	Methodology	Advantages	Disadvantages
Reitzig.et.al 2000	Option based pricing	Considers several factors which cover the risk effect.	The volatility rate does not consider the changing risk of the asset over time
Leone, et.al, 2007	Option based pricing	Taken into consideration the option characteristics of patents	The volatility rate does not consider the changing risk of the asset over time
Triest, et.al 2007	Income Approach (DCF method)	Gives the economic value of patents	Shortcomings: Detailed inputs, detailed knowledge of market and technology
Ernst. et. Al, 2010	Real Option Approach, Simulation Analysis (Sebastian, 2010)	Considers the risk over the time period of the project	1. The model is based on certain assumptions. 2. The model may not be applicable in other cases
Meeks, et. al 2010	DCF Method	1. It seeks to determine the true value of a patent, not a proxy for value; 2. It uses patent litigation as the backdrop for the claim analysis and damages calculation; 3. It is most appropriate in the technology context	The method is based on the comparable transactions. But where new patents are in question this method cannot be applied due to absence of data.
Sereno. 2010	Real option based DCF Approach	Taken into consideration the option characteristics of patents and the discounting effect of the income approach	The volatility rate does not consider the changing risk of the asset over time
Goldenber et. al, 2012	Real Option Approach (Two Step compound option pricing model)	Allows for an enhanced ability to ensure that the patent system supports innovation Supports the development of patent policies that are more sophisticated than the current size fits all system	Volatility rate does take into consideration the changing risk of patents over time

Source	Methodology	Advantages	Disadvantages
Sohn, et. al, 2013	Classification Tree Analysis	1. Valuing patents from two angles-willing to sell and willing to buy 2. Several factors have been taken into consideration which covers the risk of patents	This method requires further improvement for being applied in practice.
Russel, 2016.	DCF Approach & Value Relevance Test	Discloses conditions to the investors when the valuation of patents would be useful	Patent valuation is dependent on cash flows, discount rate and patent expiry assumptions and estimations.

Source: *Developed by Authors*

Indicator –based approach

Under this classification the income approach there are nine approaches, these are described in the Table 05 presented below ;

Table 05
Comparison of Indicator –based Approach (Academic) Methods of Patent Valuation

Source	Methodology	Advantages	Disadvantages
Grimaldi, et.al., 2014	Conceptual Framework for assessment of patent valuation	1. Assessment of the value of patent portfolios in companies' context both if a single portfolio and a single patent are considered 2. Aim at the maximum exploitation of that portfolio	Application of the model in different areas of management has not been considered
Frietsch, et.al., 2014	Econometrical Approach	A new way of measuring patent value	The study is mainly focused on developed nations. It may have varied effect in the emerging economies where no strong IPR system exists

Source	Methodology	Advantages	Disadvantages
Han et.al, 2015	Quantitative Patent Analysis	1. Gives a list of factors/indicators that are significant for survival of patents, thus bringing in improvement in patent valuation. 2. Helpful in making business plans or obtain finance for innovation based on patents. 3. Also helpful in patent infringement lawsuits	1. Need to consider other industries. 2. To make the model more suited towards patent infringement cases certain other risk factors required to be considered.
Jun et.al, 2015	Quantitative Patent Analysis	1. Efforts for an objective valuation 2. The model combines technology and market values.	Lacks a practical approach
Hall et.al,2010	Regression Analysis	Mathematical Model Considers several indicators	Need to determine the most determining factors to perform analysis using several independent variables (Lee, et.al, 2016 [b])
Wang et.al, 2014	Fuzzy Multiple Criteria Decision Making	1. The value of patents can be effectively analyzed and measured for subsequent classification. 2. Patent value is measured from three perspective -protection, strategic and commercialization 3. System proposed can help research institutions and high-tech companies to determine the value of patents and maximize commercial potential in future	The model if based on monetary model would be best suited for industry
Cromley, 2004	Conceptual Framework	This method includes several factors which covers the risk of patents to certain extent	May become too complicated
Greenhalghet.al, 2006	Regression analysis	Considers several indicators	Lack of practical usage
Park. et.al, (2006)	Structural relationship Approach	1. This method is simple, easy 2. Covers some shortcomings of other methods. 3. The method has practical application	1. The parameters that are considered are subjective in nature. 2. The method lacks validation module

Source: *Developed by Authors*

Mixed approach

Under this classification there exists one approach, described in the Table 06 below

Table 06
Comparison of Mixed Approach (Academic) Methods of Patent Valuation

Source	Methodology	Methodology	Advantages	Disadvantages
Wartburg. et.al 2008	Real Option, Game & Social Network Modelling, Scenario Analysis, Diffusion Modelling, Technology Mapping	Value-chain Modelling	1. Multiple valuation methods are used. 2. Valuation done from two perspective-static and dynamic. 3. Enable in valuation of patents for out-licensing	Calculation may be complex

Source: *Developed by Authors*

Market Based Approach

Under this classification the market based approach there exist one approaches, these are described in the Table 07 presented below;

Table 07
Comparison of Market Approach (Academic) Methods of Patent Valuation

Source	Methodology	Advantages	Disadvantages
Chiu, et.al 2007	Rating/ Ranking Approach	Useful in licensing decision	Done from the view of licensor. Licensee perspective not considered.

Source: Developed by Authors

Limitations and Scope of Future Research

For conducting a critical analysis of the patent valuation methods attempt has been made to collect information from various research papers. The research presented in this article is based on available literature, globally some more may exist which are beyond access. In order to refine the findings, a formal survey of practitioners can prove to be worthwhile. It would also be useful to conduct a survey on clients' satisfaction with the methodologies used.

Conclusion

This article has given the researcher / reader an idea on the existing patent valuation methods and reached the conclusion that no one method is suitable for all uses / users, it could not be made sure that which methods is suitable for some usage. The valuation should focus on three aspects, viz. purpose the valuation is being done, for whom the valuation is done and finally what is the time period for which the valuation would remain valid. The valuation methods should analyze the bundle of legal rights, and, finally, there should be easy of availability of sufficient data for such valuation. This article has also brought to light that there are few criteria's that needs to be considered for valuing the patents. These are the unique features of the underlying asset protected by the patent, the breadth and scope of the patent, the existing technology that the new technology would replace. It is also needed to keep in mind factors like time required, processing cost to be incurred to fully commercialize a technology, the capability to protect the new technology, the market size for the new technology, future prospects for the industry to which the technology belongs and any strategic or economic influence that the technology would face. The article classified the existing methods in two groups (praxis and academic), the academic models, though sound in nature, requires data on ideal factors, which at times is difficult to achieve. On the other hand the praxis methods are not always academically robust, is some cases there is need to validate. In this paper thirty nine (39) approaches had been discussed and their advantages and disadvantages recorded. This has actually broken the clutter and set out a map of the jungle of patent valuation. Using this guideline the practitioner / academic researcher can choose the right technique among the alternatives.

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Women from the Lowest Economic Strata in Unconventional Jobs: An Indian Perspective

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Abstract:

One of the enduring commonalities amongst the otherwise diverse and varied social frameworks of civilizations across the world and across timeline is the almost similar social status accorded to women in these societies. The treatment meted out to women in various societies over the years is characterized by the systemic discrimination and the subordinate role they play in the family and society at large. This has been the common feature of the social relationship and status that women hold not only across societies but within the social classes of every society including the Indian society.

This is an exploratory study based on narrative research that ventures to examine the changing social and economic status of Indian women belonging to the backward classes within the ingrained caste framework that till today defines to a great extent the social and cultural fabric of the Indian society. This work seeks to understand the specific barriers (organizational and otherwise) that Indian women below poverty line face and their attempts to overcome them in their pursuit of economic independence and social upliftment through unconventional jobs. This study ventures to chronicle the familial influences, within the social and cultural milieu and background, their personality traits and their collective impact on their decision to pursue such unconventional jobs successfully.

Key words:

Glass Ceiling, Gender, Organisational Barriers

Introduction and Background to the study

Since India's independence in 1947, more and more women (as across the world) have stepped out of their homes and their roles as home makers and entered workplace at all levels constructively contributing in public life, and thereby successfully redefining the Indian woman's image. Indian women today have stormed almost all professions which were hitherto male bastions. Considerable literature is available on the many challenges these women face and their efforts to break the glass ceiling at workplace. Gender studies in India have chronicled the entry and performance of women in glamorous and male dominated professions such as politics, science and technology, armed forces, business, performing arts and media to name a few. But these women achievers

generally have come from an economically viable background. Little has been researched or written about women below poverty line who have been working long before the women of the Indian middle and upper class stepped out of their homes. These poor women for long have been bread winners for their families working as domestic helps, nannies, sweating in agricultural fields and carrying bricks in construction sites. In the past decade or so, these very women have been responsible for a silent revolution in their quest towards self reliance and economic independence.

These women have stepped out of their conventional jobs which they have been engaged in for generations and have stormed a few male bastions at their own levels, jobs such as auto drivers, postmen, waiters in small restaurants etc. This phenomenon has a great deal of symbolic significance in Indian women's emancipation when understood within the social and cultural context of India. These few women are symbolic icons who bridge the chasm of economic denial and exploitation, successfully showing the way to empowerment, independence and thereby a better quality of life for scores of ordinary Indian women.

A chance travel in an auto driven by a lady auto driver prompted the researchers to write this article on women below poverty line who have entered such challenging professions at their economic levels. This case study is based on narrative research and seeks answers to the following research questions based on interview method from few of the many such faceless women of India who have stormed into unconventional jobs.

1. What are the reasons behind their decisions to enter these unconventional jobs?

2. What are the social and organisational challenges they face at the operational levels and how do they overcome the stiff barriers in these unconventional jobs?

3. How do they evaluate their future in these professions based on their experiences?

The next section of the paper provides an overview of existing literature on the concepts of differences in gender behaviour at workplace which are the basis for gender stereotypes and lateral and horizontal segregation of women at workplace. The next section describes the research methodology used followed by the presentation of data as snippets of interview presented along with a discussion based on the findings from the study carried out. This is followed by the final section that discusses the import of the findings on the future of employment of women in these unconventional jobs along with the limitations and future directions for further research in this area.

Literature Review

Theories on Gender Segregation in paid employment

Theories and models categorise the reasons for differences in gender behaviour at workplace and therefore the existence of glass ceiling, into three categories. They are biological, socialization and structural/cultural by nature (Lueptow, et al., 2001). Biological models argue that the stable biological differences between men and women are a result of differences in psychological predispositions, which have evolved over time (Wood and Eagly, 2002). But, socialization and structural/cultural models have been used more than biological and evolutionary models as they have given the most accepted explanation for gender differences (Bartol et al., 2003). This is because biological models cannot explain meaningfully the differences in gender differences across cultures (Wood and Eagly, 2002) and it is only the other two models that can satisfactorily explain the inequality between genders and they argue that gender differences gradually evolve during the various developmental processes associated with life stages which are based on individuals' socialization process (Bartol et al., 2003). Within the structural/cultural theories the social role theory is the most prominently used in explaining gender differences at workplace.

Social role theory (Eagly, 1987) states that men and women fulfil certain gender and social roles and their beliefs and behaviours are decided by the stereotypes attached to these roles (Franke, et al., 1997). These gender role stereotypes are defined through shared experiences on how individuals of each sex should behave and qualities they should possess (Eagly, 1987). This theory suggests that the gender stereotypes create different expectations of men and women, thereby resulting

in different socialization experiences and lead to differences in attitude and behaviour between the genders (Wood and Lindorff, 2001). Another important theory that reiterates the differences in gender role stereotypes is the expectation states theory (Ridgeway, 2001). The expectation states theory proposes that the differences in gender role stereotypes are because of the difference in status value accorded to genders. Societal and cultural beliefs accord different status values to gender roles on the basis of inequalities that are observed during social interactions. Both the social role and the expectation states theories distinguish between agentic and communal type of behavioural differences that define the gender role stereotypes. These gender role stereotypes seem universal across the world where women are believed to display communal type behaviour such as caring, nurturing and emotional expressiveness (Eagly, 1987) whereas men are believed to manifest agentic type of behaviour such as ambition, assertiveness, control (Wood and Lindorff, 2001). These behavioural differences in turn reemphasis the traditional role stereotypes of men and women in society with the woman taking care of the house and the man providing for the household through working outside.

But these gender stereotypes have started to give way as more and more women are entering the paid workforce (Hind and Baruch, 1997). With more and more women entering the workplace a number of gender and cross cultural studies have been conducted and these studies confirm that while women have broken their gender role of a homemaker and have entered workplaces, new gender stereotypes at workplace have evolved and these studies confirm the concentration of women in certain type of jobs, and these female type of jobs include areas such as education, health services, finance, banking, communication, administration and Public Relations (Omar and Davidson, 2001). Adding to the occupational segregation, vertical segregation even within these female jobs is prevalent with men occupying the higher echelons of these so called female jobs and women struggling to break barriers to reach the top. Such experiences of working women and the systematic discrimination they faced at workplaces created a spurt in literature and research dedicated to studying the barriers that women face at workplace, glass ceiling, work life conflicts etc. Much of the research in gender studies at workplace across the world including India has focused on women in management and service occupations (Lawthom, et al, 1996).

The growth of women's paid employment due to rapid industrialization has been recognized as a major social and economic trend in many developing societies (Cagatay and Ozler, 1995).The status of middle and upper class Indian women has undergone substantive change with industrialization, urbanization, democratic principles and legislative change and the influence of West (Nath, 2000). The change is most apparent in the urban, middle class as more and more women from the middle class gained access to education and paid employment outside homes (Jain, 1992). It is argued that the financial independence brought by employment, increases the confidence and self- esteem of women and brings recognition within family and society (Liddle and Joshi, 1987). This also lead to women becoming aware of their personal needs and selves and beginning to realize their right to be treated with equality and fairness both at work and at home. Whereas the women of rural and small town India who were employed in large numbers as landless agricultural labourers, or were engaged in caste[1] based traditional occupations have not greatly benefitted by the economic development and urbanization in the last fifty years as much as the large Indian middle class women(Ghosh and Roy, 1997). Infact in many cases the rural women have been adversely affected by urbanization which caused loss of jobs in the agricultural sector. Because of the lack of suitable retraining facilities, they were unable to acquire new skills (Tisdell et al., 1996) and their resulting economic misery was compounded manifold times by illiteracy and family commitments.

Rationale and Objectives for the study

Much of the mainstream research in gender studies in India has been on the middle class educated women who are gainfully employed in large numbers in lower and middle managerial jobs in the organised employment category and their efforts in breaking the glass ceiling to reach the top management. But very minimal research has been done on working women of the lower rungs of the social and economic ladder in the Indian context. While most of these women from rural and small town India continue to be employed in

conventional jobs that are part of unorganised employment such as domestic helps, daily wage labourers and small time self employment in the form of fruit and vegetable vendors, a few of them have ventured into certain challenging and unconventional jobs.

To understand the phenomena of Indian women below poverty line succeeding in physically challenging jobs of Auto and Bus drivers, Security guards, Postmen and Gas station attendants, we need to understand the socio-cultural status accorded to women in the Indian society and the differences and similarities in the way women of different economic background across the social ladder are treated by family and society.

The history and tradition of Indian women is uniquely paradoxical. Indian women of particular social classes have had greater freedom than their western counterparts. They have had access to education and certain professions and had the right to own property, and amongst certain social classes women have been very powerful (Nath, 2000), yet there has also been a long history of oppression by men, female foeticide and other such social evils. Practices such as Sati (immolation of the widow on her husband's funeral pyre, dowry (payment of bridal price) relegated women to a subservient role both in the family and society at the same time society accorded much respect to women worshipping them as goddesses. Both ancient and modern India has had strong and powerful women leaders in politics. These women leaders have been accorded great reverence by the same Indian society where wife battering has also prevailed. Religious texts treat women with honour while the son is the preferred child and there is no rejoicing when a daughter is born (Nath, 2000). This complex paradox is deeply ingrained in the psyche of the Indian male and female and it is within this cultural and social framework the rise of women's economic independence and the change in the social and economic status especially of women of the lower social classes in India must be understood.

Methodology

Though a large number of rural women are employed, a very small number of them have ventured into these unconventional jobs, therefore the sample size of this study is small and narrative research has been used to as the interview method seemed the best way of data collection.

Narrative Research

Over the years narrative enquiry has also become an important epistemological tool to understand human experience (Bruner, 1990). Through narratives we get a better understanding of human experiences and the intentions behind their actions, but narratives must be understood within particular social, political and cultural contexts (Cubillo and Brown, 2003). Narrative enquiry aims to understand, rather than to measure people. There are smaller number of respondents and the sampling is not probability, but on 'typical units' (Punch, 1998; Sarantakos, 1998)

Sample Selection and Description

A sample of 10 women below poverty line in unconventional jobs was chosen to be interviewed based on the nature of professions in the first phase of the survey. The first sample consisted of 2 auto[2] drivers, 1 bus driver, 1 post lady, 3 lady security guards and 3 gas station attendants, the second phase contained a sample of 13 women of whom 8 were waiters in restaurants and 5 were gas station attendants, and all of them are residents of Vellore district of Tamil Nadu in South India (Table 1).

The reasons behind the choice of sample are as follows: All the jobs mentioned above are physically strenuous jobs and requires long hours of standing or sitting or cycling while at work. Another commonality in these jobs is that these jobs require working outside traditional office workspaces and in full public glare. These jobs also require close interaction with the public who are the direct users whom the people in these jobs serve. These jobs have been traditionally done by men and it is till date a novel sight for anyone (especially in South India) to see women doing these jobs given the cultural and social background as already explained.

The interviewed women were between 21 to 38 years of age and hailed from towns and villages in Vellore District of Tamil Nadu, India and worked at Vellore district and the lone bus driver worked at Chennai. Their work experience in their present jobs ranged between 1 to 5 years. The lady auto drivers were 9th

standard pass, the bus driver was an M.A and was trained at the Institute for Road Transport and the others were 12th standard pass. Thirteen of them were married and the 6 ladies at the gas stations, 3 waiters and the lone post woman were unmarried. All the interviewees belonged to the backward class and came from an economically poor background. The spouses of the married respondents and the parents of all respondents were working (self employed in traditional jobs). But in most cases their earnings from the job was the major source of income to their families. All of them were village bred or town bred. All of the interviewees were promised anonymity and assured confidential reporting as except the auto drivers who were on their own, the others worked for a company or an organisation.

The lead researcher personally transcribed all interviews to ensure confidentiality of respondents. The study is exploratory in nature given the very small number of women who have ventured into the above mentioned professions and intended to find out the difficulties and challenges that these women faced in these unconventional jobs. The respondents were extremely cooperative and were pleased to be interviewed as they found this exercise as an acknowledgement of their nerve and sinew.

Table 1

	First Phase	Second Phase
Bus Drivers	1	
Auto Drivers	2	
Waiters		8
Gas Station Attendants	3	5
Post Lady	1	
Lady Security Guards	3	

Total: 23

Questionnaire Design and administration in the Interviews

All interviews were conducted with a common set of questions (Appendix 1) that intended to explore the family, educational and economical background and influence, the nature of the job of the respondents, the reactions of customers, superiors and neighbourhood on their choice of jobs, the barriers and challenges faced and ways adopted by the respondents to overcome them.

The first part of the questionnaire pertained to an introduction about them, traced their family origins, early childhood, and described their family, economical and educational background.

The second part of the questionnaire sought information from the respondents that traced as to how they got into the current unconventional jobs, people and agencies that helped their entry and training in these jobs.

The third part of the questionnaire delved on their experiences with people while at their jobs. The respondents shared their initial experiences in the jobs, the professional difficulties and the barriers they faced because of their gender, while induction and thereafter. They gave elaborate insights into how they were treated by their colleagues, customers and superiors, family, neighbourhood and society in their jobs.

The last part of the questionnaire covered the respondents' views on themselves and their careers and collected reflective information on insights they would share with other women wanting to venture into their kind of jobs.

Data and Discussion

The interviews provided an avenue to these women to express their opinions on their life and careers allowing them time to reflect and validate their experiences and learning. The interaction gave them an opportunity to introspect on their choices in life and the effect their choice of job has had on their personality and vice versa. They were extremely forthcoming in their answers and participated in this exercise with enthusiasm. Table 2 gives a snapshot of the major findings followed by a detailed discussion in a narrative methodology.

Table 2

Findings	
Socio Economic Background	Engaged in familial occupations, Not new to employment
Reasons for choice of these unconventional jobs	Poverty Family members/spouses in similar jobs Better future for their children Fascination towards the unconventional nature of the job Personal drive and initiative
Organisational and Social challenges	Dual role Curious and surprised colleagues, neighbours and public Initially sceptical employers and colleagues
Support Systems	Supportive parents and spouse who take of the children Encouraging government support Supportive though paternalistic male colleagues
Future of women in such jobs	Sceptical of the supportive attitude of male colleagues as more and more women enter these jobs Passion for the job required to cope with the rigours Economic reasons and family responsibilities shall decide their continuance in such jobs

Similar Family, Social and Economic Background and Early Childhood

All of the 23 interviewees came from economically weak and socially deprived class. They came from poor families where both parents were engaged in daily wage based traditional jobs to make ends meet. Their parents were peasants working on agricultural lands owned by others, labourers at construction sites, domestic helps, or they were engaged in traditional occupations that the whole families were engaged in such as washing, iron casting, rope making, beedi[3] making etc. In a way, the concept of working women is not new to their families as their mothers were also engaged in work. They had many siblings and they were also engaged in the familial occupation in their growing years. Most of the interviewees saw themselves as being 'adventurous and boisterous' in their own words from childhood.

...I was an outdoor person in my childhood and loved to swim with my brothers and climb the local hills...

.... I was always called the tomboy and I was to be found playing outdoor games with boys of my age while my sisters used to play pandi and dayam (games played by girls)....

....I was always interested in vehicles; I learnt to ride a bicycle on my own and used to drive bullock carts in my village.

.....I being the eldest sibling had to shoulder the responsibility of the family like a man.....

They had been different in their behaviour from their female siblings and displayed characteristics not expected of girl children in their early years.

Reasons for Choice and Initiation into their Current Unconventional Jobs

Most of them were married and while they initially pursued jobs that their mothers were engaged in such as domestic helps, running a roadside breakfast stall or helping their

husbands in their traditional occupation, they chose these unconventional jobs because they had a strong liking and passion to pursue their present careers. All of them stated that poverty was the only reason that has forced them to work, and while there was no choice for them not to work, they decided to pursue a career of their choice.

.... I tried my hand at my family profession, I also worked as a domestic help, but later I decided to take up this job, as I was always fascinated about this job.

...I am working to give a better future to my children by giving them good education, so why not do something that I like.....

.... Seeing more women co-workers working in decent restaurants gave me the courage to take up this job.....

Another reason for choosing such jobs is that many of them had their spouses or family members working in similar professions and they initiated them into these jobs.

.... My husband is a car driver and my uncle who is an auto driver taught me to drive his Auto....

.... My brother is in the same profession and he recommended me to the job....

Family Support and Encouragement a Crucial Factor

Another commonality found among these women is the family support that helped them to take the rigours of their jobs. They seem to have had supportive parents, a spouse who encouraged or at least was indirectly supportive and children who had a motivating influence.

....I owe my success in this job to my family, parents who supported me through thick and thin, understanding husband and children who are proud of my efforts.

....My daughter helps me in household work when I am working in a night shift which is very helpful.

....My mother used to take care of my child till the time I reached home. Her presence at home kept me at peace in the workplace.

.... It is our poor economic condition that has made my family members accept my decision to take up this job at the gas station....

While in general the family was supportive in allowing these women to take up these unconventional jobs, they all felt that home was still the priority and they were in their jobs only to help improve the economic condition of their families. They had no qualms about carrying out the household chores even after hard work through out the day in their jobs. Many a times they felt guilty because they were unable to cook an elaborate meal or pack lunch for their children because of the pressures of their job at workplace. They seemed to be happy playing this dual role and did not feel that it is necessary for their spouses to lend a helping hand in the household chores as they strongly believed that taking care of the home was the primary responsibility of the wife.

It was interesting to note that during the conversation with one of the interviewees her spouse called to find out what she had cooked for lunch and she very dutifully and lovingly told him the menu and also insisted that he ate well.

Personal Drive and Initiative

While poverty and their quest for a better quality of life was the main reason that forced them to work their choice of job, their success was purely because of their initiative and personal drive. These women were pioneers in their fields so they did not have women mentors to help them through the difficulties and many of them were not very educated. It was purely their inner strength that helped them take the unbeaten path and succeed there. They had to learn through experience. Focus on goals and persistence was the key they insisted.

...Driving an auto in busy traffic is definitely not easy. It did not come easily to me, but I persisted and acquired the required skills...

...I am very much focused; I want to achieve something in life. I am one of the two auto drivers in this district, I am learning to drive a bus and am in the process of acquiring a

bus license, and I am appearing for 10th examinations and have to clear 4 papers. Once I pass my 10th standard, which is required to apply for the job of a Government bus driver, I am confident that I will become the first woman bus driver in Vellore district....

.....I am fascinated to see the working of the kitchen and the way work gets done in a restaurant. I have a learnt a lot here and I intend to grow in my position and job responsibilities in this industry.....

Difficulties Faced Socially and their Measures to Overcome Them

They were aware that they do not conform to the feminine stereotypes and were psychologically prepared since beginning to withstand and overcome the pressures from the society and organisations.

...While standing near the gates for hours together and manning the post itself is physically tiring, what is even more challenging is taking by the stride the curious glares, sometimes inappropriate glances, surprised looks by people on the roads.

...Not a day passes by without at least one or two people looking at me in surprise while I drive on the roads.

....Initially my neighbours scorned while I used to learn driving. Now I am so famous that anybody would direct you to my house if you ask for the house of the lady auto driver.

....Two elderly ladies of my locality have in fact advised me to give up my job as it did not look nice to see a woman standing outside the gates on the road in public glare.

....I sometimes used to be upset by certain obnoxious comments and glares by customers at the petrol pump. Because they are customers I will have to restrain myself, but I learnt to retort by giving them a cold smile and glare or ignoring them.

Their contention was that though initially the immediate locality in which they lived, neighbours and people in general were surprised, curious, and sceptical and in worst cases non-approving of their choice of jobs, later on they had begun to respect the interviewees for the resilience and success displayed and were proud of them.

Government and Organisational Support

The two auto drivers owe their success to the excellent support provided by the local administration, the RTO (Road Transport Organisation) office and the bank for helping them in the tedious process of processing the license, bank loans and subsidy in acquiring an auto. They vouch for the local and state governments as being extremely committed to affirmative action in improving women representation in all fields and their upliftment.

....The District Collector and a lady officer sat in the auto and I drove them in an auto and they expedited the processing of the subsidy and the keys to the auto was handed over in a public function by the chief minister.

But the bus driver had a partially different experience to narrate. While she too echoed similar views on the encouragement provided by the government and the organization while she entered the job, she now wanted to move to a desk job within the Bus Corporation as she had a history of physical ailments that was hindering her work behind the wheels and unfortunately was not helped by the corporation and she was fighting her case for a transfer to a desk job. The gas station attendants and the security guards described their organisations as women friendly and very helpful in their early stages.

....My male colleagues would always have a watchful eye and if they suspect intent of misbehaviour from a customer they would be immediately by my side.

...The management is flexible and as a policy does not give night shifts to women.

Their being the first women in their organisations resulted in their being treated paternalistically by their superiors and colleagues. Many of the interviewees felt they were treated with indulgence by their colleagues and they were always

ready to lend a helping hand because of the novelty factor.

....My colleagues at the auto stand call me 'akka' (elder sister), initially when I was involved in a road accident during my early days, they helped me in the hour of crisis, even now when I am stranded because of a mechanical problem or a nasty passenger they immediately come to my rescue.

....Both of us hold organizational positions in the Auto driver's trade union and we actively participate in the trade union activities. Our contribution in the trade union is respected by the male members.

...My male colleagues were really appreciative of my bus driving, but they would also feel sorry and would ask me why I should continue in this strenuous job as even men find this job physically tiring.....

In general the interviewees echoed a similar perception about the attitude of their male colleagues towards them as being either paternalistic or one of amusement in seeing them sustain the rigours of the male job but never one of condescension. But one of the interviewees felt that the supportive nature of the male colleagues might be due to the novelty factor.

....and may be they do not see any threat to their positions as we are very few ladies now in this field and are still learning the ropes. If more and more women enter this field I am not sure if the same support will be given by the men.

Self Evaluation of their Experiences

Based on their experiences at their unconventional jobs all of them shared a similar perspective about the generally supportive nature of the society. They attributed the support from the society to reasons such as general respect accorded to women in Indian society and the paternalistic attitude of male colleagues and even women who appreciate the efforts of these women knowing their modest background.

....I think it is human nature to feel happy and proud when you see a woman (coming from poor economic background) breaking stereotypes and working shoulder to shoulder with men. It is like seeing your cricket team win a match against another team ....

....Women commuters have been especially happy to see me driving and they feel that women would make better and safe drivers. They affectionately embrace me and encourage me and display their happiness...

....My male colleagues have been very protective and helpful during my training. This positive discrimination is necessary to encourage more and more women to enter these male dominated jobs. But I am not sure whether this attitude will remain the same when the women begin to outnumber men in my profession or when they seriously contend for promotion in the organisation....

Except for the bus driver who said:

....I took up this job with a lot of passion and I still love driving a bus, but my health condition now does not allow me to continue and I am sad to take the decision to take a transfer to a desk job. I am unable to take care of my children at home at the end of the day as I get too tired. My family responsibilities take precedence over my passion.

....My advice to women who would like to take up bus driving is that, it is easy to follow this passion as long as one is unmarried. For a married woman if she has proper family support to take care of the children and household work then she could continue in this job till middle age. So think twice before deciding on such job.

....All of them agreed that their jobs were not easy jobs and required extra effort but if one had the will there was always a way.

Conclusion

The interaction with these unique women brought out the same issues that educated working women face in the public and private sector organisations, but their reasons for seeking economic independence and excellence in their unconventional jobs seem to be different. These women came from a social class whose women for generations have been working in their traditional occupations; this experience seems to have

made them more rugged and tough to counter the professional and social difficulties that they faced in their pursuit of the unconventional jobs.

These women have challenged the factors that are termed responsible for the relatively low participation of women in the industrial labour force such as:

♦ a high level of frictional unemployment due to frequent movements in and out of the labour force;

♦ relative lack of training; and

♦ occupational and geographic immobility.

Their success can be attributed to their personal drive, initiative and passion to do something different and they all have travelled the extra mile to achieve. The family, neighbourhood, organisation, colleagues and society in general had been very supportive. This support can be attributed to the general respect that Indian women are held in and the novelty of seeing women in jobs which for long have been male bastions. As Calias et al(2009) states, a less competitive and usually smaller work environment that the kind of Organizations like the gas stations and restaurants offer and the freedom of self-employment offered in the jobs of an auto driver, self-employment, can be described as enhancing opportunities for cooperation among organizational members, allowing these women to break the gender role stereotypes.

The overwhelming reason to work was to improve their economic status of their family rather than seeking individual economic independence. They did not seem to have any feminist agenda or women empowerment motive behind their deeds. If a situation arose they were willing to leave their jobs and return back full time to the traditional role of the housewife and loving mother.

They were content playing the traditional role of a mother and wife and saw their jobs as only a tool necessary to fulfil the requirements of their family. Their minds were uncluttered and almost all of them do not see any trouble in maintaining work life balance and in a situation where is there is work life conflict they are ready to leave their professions for family's sake. They did not expect their spouses to share work at home. They were happy that they are allowed to pursue the professions of their choice by their spouses. This freedom by itself was the biggest support given to them by their spouses.

While it was good to see their ability to cross the chasm of poverty to economic independence, their psychological clinging to the traditional role of a wife and mother and their thought process in seeing the economic opportunity in their unconventional jobs as a means to further the nurturing role and fulfil their family responsibilities can only be attributed to their strong cultural indoctrination of the role of women in Indian society. Their action has indeed paved way for women empowerment and has helped to change the status of women in society, but the motives behind their inspiring actions might seem retrograde to feminists. They had shown resolve and grit in encountering social resistance and public scrutiny in the outside world, and they were equally happy to continue to play the role of a subservient wife, or a dutiful daughter. All of them were unanimous that the moment their jobs were going to hamper their family responsibilities or when the support by their families stops then they will give up their professions for the sake of family and the bus driver was already contemplating a change of profession.

The limitation of the study was its small size of the sample but the uniqueness of this sample is that the sample was almost the population as very few women are presently working in such jobs. A follow up study with the same sample would help to re-evaluate the changes if any in the work experiences, and family work conflicts and their growth in their respective careers. In conclusion, the paradox of the status of the Indian woman discussed earlier is manifested in the pragmatism and resilience displayed by these women to succeed in these unconventional jobs for the sake of their families and we must wait to see if this paradox continues to define the Indian woman in the future.

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Appendix 1
List of Questions used during the Interviews:

S. No	Description of Questions used in the Interviews
1	**Similar Family, Social and Economic Background and Early Childhood** 1. How long have you been in this job? 2. Describe your social, familial and economic background?
2	**Reasons for Choice and Initiation into their Current Unconventional Jobs** 3. Why and how did you get into this job?
3	**Family Support and Encouragement a Crucial Factor** 4. How did your immediate family react to your decision to pursue this career? 5. In what ways does your family support you to succeed in your job?
4	**Personal Drive and Initiative** 6. Do you think it is easy for you to do this job? If not, how have you coped with the rigours of this physically strenuous job? 7. What makes you tread the less travelled path while you have had easier options in conventional job?
5	**Difficulties Faced Socially and their Measures to Overcome Them** 8. How did your neighbours in the society react in the beginning and now? 9. How do your customers treat you and what is their reaction while seeing you at work?
6	**Government and Organisational Support** 10. How have the Government and/or the Organisation that you work in been helpful in getting you this job and in your induction? 11. How are you treated by your male colleagues and superiors at workplace?
7	**Self Evaluation of their Experiences** 12. What are your thoughts on your experiences in this job? 13. What is your advice to women who would like to take up this job?

(Endnotes)

[1]Caste denotes hereditary system of social class on the basis of occupation. The various castes were assigned social status and thereby assigned in hierarchies which resulted in discriminatory practices against people on the basis of their castes.

[2] Auto also known as tuk tuk or auto rickshaw is a motorized three wheeler vehicle available for hire and is a popular mode of public transportation in India.

[3] Beedi is a form of cigarette made locally. A leaf called Tendu is used as a wrap which is filled with tobacco. Beedi making is a big child labour industry in India where whole families are involved in the making of the Beedi.

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