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NOTES FOR CONTRIBUTORS

Our global and political environment is bubbling with great hopes and aspirations of pink health and rising graph of Trade, Industry and Commerce all around. As such, it becomes my humble and honest duty, belonging to the world of academics, to interact and share with some instrumental guidelines for the contributors and participants in the forthcoming issues of the Indian Journal of Commerce.

Research along with its practical implications and usage and utility in the field of business studies has great relevance today. It is therefore, suggested that Papers based on application oriented research are more welcome; especially in the fields of industry, commerce, business studies and management areas. The papers must include tables, diagrams, illustrations and such other tools to support the different and divergent viewpoints. As such, the length of a paper including all these has to be cautiously controlled and should not exceed 20 double space pages. Short communications relating to review articles, report of various conferences, summary/views on several governments' reports, database issues etc. should also not exceed more than 5 double spaced pages and are invited to be published. We also welcome book-reviews and summary of Ph. D. dissertations but not in more than two double spaced pages. Care should be taken that whatever manuscripts are sent for publication in this journal should not have been published elsewhere any time before.

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I am sincerely acknowledging my gratitude to all the life members of ICA and readers for their consistent support and trust by devoting time, consideration and generosity towards IJC. Life members' personal commitment was incredibly helpful and allowed us to reach our apex goal in the form of high reputation, creditability and real shape to start of ICA building at Greater Noida. Their assistance means so much to me but more to ICA. I hope that all of you will use all of yours' experience, skills, knowledge and education to move our organization forward. We are proud to have you as part of our team and look forward to your future contributions.

I am very much pleased to present the Vol. 70, No. 2, of the Indian Journal of Commerce before the readers, life members in general and in particular the delegates of the **70th All India Commerce Conference** organized at **IIS University, Jaipur** from 12th to 14th October, 2017. The Indian Journal of Commerce aims at disseminating research output and providing crucial information about recent developments in the relevant fields, by way of high quality research papers on the topics related to business and allied areas. With each issue of the journal, we are trying our best to bring to you the latest and authoritative insights into the facilitating world of commerce education.

In this issue of the journal, we have put together the 14 research papers, reflecting diverse interest in the field of business covering the topics of **The Economic Impact of Climatic Change on Agricultural Sector, Role of Sustainable Tourism in Make in India, Regional Disparity in Entrepreneurship Promotion, Liquidity Management, International Portfolio Diversification Strategy, Revenue Diversification and its Impact on Profitability and Efficiency of Private Sector Banks in India, Overall Effectiveness of Training Program by Advanced Training Institute, Hyderabad, Comparative Performance Analysis of the ICICI Bank and the HDFC Bank, Determinants of Profitability in Private Sector of India, Financial Inclusion, Performance Appraisal of ICICI Prudential Life Insurance Company Limited Using the CAMEL MODEL, Empirical Evidences on Weak Form Stock Market Efficiency, Inclusive Growth of Rural Uttar Pradesh through Carpet Industry and Consumers 'Perception Towards Green Electrical Cooling Appliances.**

Temperature and rainfall greatly affect livestock net revenue too besides routine agricultural activities. Increasing trends of global warming, mainly contributed by those of western big-brothers due to their partisan and irresponsible means of emissions controls, are creating havoc to many poor countries around the planet. Sustainability is essential in all forms of tourism in order to make India a perfect tourist destination in the world. Retain environmental sustainability is a prerequisite of tourism development. Liquidity management of the company plays an important role in running and operating the business activities smoothly. The liquidity is a vital factor in business operations. For the very survival of business, the firm should have requisite degree of liquidity. It should be

neither excessive nor inadequate. International portfolio diversification is a function of correlation of equity markets across countries and amount of correlation one market has with another decides the scope of portfolio diversification. Evaluation of training is the most essential aspect of any training programme. Generally, all good training programme start with identification of training needs and ends with evaluation of training. Financial inclusion is the need of the hour and banking sector, particularly the Cooperative banking sector has played an important role as providers and facilitators in the credit delivery mechanism through their microfinance initiatives. An efficient market is one where market price is an unbiased estimate of the true value of investment. All it require is that errors in the market price be unbiased, i.e., prices can be greater than or less than true value, as long as these deviation are random. As green marketing activities are flourishing in many countries, these activities played a significant role in enlarging consumer knowledge regarding green electrical cooling appliances too and in switching consumers from over conventional electrical cooling appliances to green ones.

We are grateful for all you have done, and pledge our best effort in continuing this service. I express my gratitude to the amine authors for their valuable contributions and thank you for bringing your passion, intellect, insight, experience and resources to the journal. I will repay your kindness with a promise to make your time here enriching, and perhaps even transformative. At last but not the least, I conclude by quoting few lines by "**Gautama Buddha**":

"Let us rise up and be thankful, for if we didn't learn a lot at least we learned a little, and if we didn't learn a little, at least we didn't get sick, and if we got sick, at least we didn't die; so, let us all be thankful."

With warmest heartfelt thanks,



Prof. H.K. Singh

The Economic Impact of Climatic Change on Agriculture: A Case Study Pertaining to Oromia Region, Ethiopia

Pranab Kumar Bhattacharya

ABSTRACT

This paper presents an empirical analysis of the economic impact of climate change on agriculture and its associated activities in a developing country like Ethiopia. Though the researcher, for the convenience of his study chosen a specific area in the Oromia region, the story of farmers' woe do not differ much lest anywhere in the country. The economic implications of climate change were estimated by using farm productivity including pastoral activity. Data were drawn from 260 farmers producing cereal crops in the designated areas of Oromia region in Ethiopia. I found that climate change adaptation had a significant impact on both farm productivity and farm net revenues earned through related pastoral activities. In this study I have tried to complement the analysis by providing an estimation of the determinants of adaptation. Extension services (both formal and farmer to farmer co-operations), as well as access to credit and information on future climate change seemed key drivers for successful adaptation.

The study finally established that the climate change can have significant negative impacts on Oromia's agriculture unless appropriate adaptation measures are seriously undertaken. Analyzing the economic impact of climate change on agricultural production broadened and extended the understanding of the complex interlinks between climate change and agricultural productivity in the region and enhanced the needs of informed policy making by the government and appropriate crop decisions by farmers.

INTRODUCTION

Ethiopia has an agrarian economy wherein the majority of the population depends solely on agricultural activities for their livelihood. This sector is especially vulnerable to the adversities of weather and climate change since it is rain-fed, supported by relatively basic technologies, and on tiny plots of land. Another climate and weather sensitive activity is pastorals. When there is not enough pasture or water, pastoralists encounter enormous losses of livestock, their most important asset favoring survival support.

Agriculture, even in these days of 2017, remains by far the most important sector in the country's economy. The sector directly supports about 85% of the population in terms of employment and livelihood; contributes about 50% of the country's gross domestic product (GDP); generates about 88% of the export earnings; and supplies around 73% of the raw material requirement of agro-based domestic industries. It is also the main source of food for the population and hence the prime contributing sector for food security. In addition, agriculture is expected to play a key role in generating surplus capital to speed up the country's overall socio-economic development. Small-scale farmers who are dependent on low input and low output, depend solely on rain-fed mixed farming with age-old traditional technologies dominate the agricultural sector.

Ethiopians has always suffered from great climatic variability, both yearly and over decades. Rain failures have contributed to crop failure, followed by starvation, hunger and even famine in the past. Even relatively small events during the growing season, like too much or too little rain at the wrong times, can spell disaster. Farmers and

Key words

Adaptation, Climate-change, Farm-productivity, Pastoral-activity, Rainfall

pastoralists, who are already struggling to cope effectively with the impacts of current climatic variability and poverty, will face a daunting task in adapting to future climate change. As established by the Intergovernmental Panel on Climate Change (IPCC) and other studies, climate change in this country will continue to increase variability in weather patterns and make them more extreme in the years to come.

Variability means that it is harder for families and communities to predict the ever-changing, inconsistent weather. For now, this means that the little that they have, goes to dealing with the current unpredictable weather because their livelihoods are so dependent on it. Often this exposes them to a whole range of other shocks, such as despair, illness, psychological break-downs etc., which makes them even more vulnerable. Recent scientific projections of climate models do not only predict a substantial rise in mean temperatures till the fag end of the current twenty-first century but also an increase in rainfall variability with a rising frequency of both extreme flooding and droughts due to literally uncontrolled harmful effects of carbon emission around the world.

Increasing trends of global warming, mainly contributed by those of western big-brothers due to their partisan and irresponsible means of emissions controls, are creating havoc to many poor countries around the planet. Small-scale farmers and pastoralists in Ethiopia's Oromia region are likely to face the unbearable brunt of the negative impacts of climate change in those areas under study, which will include increased poverty, water scarcity, and food insecurity.

As part of a new World Bank project to provide analytical support for the mainstreaming of climate change in its developmental policy, this study tries to develop a dynamic multi-dimensional modeling framework for climate change impact and adaptation policy assessment. My study incorporates regional temperature, precipitation and extreme weather event predictions from global circulation climate models as well as insights from a detailed review of empirical studies of the link between agricultural yields and climatic conditions.

This research uses the Ricardian approach to analyze the impact of climate change on Ethiopian agriculture and to describe farmer adaptations to varying environmental factors. It analyzed data from 5 of the country's 18 agro-ecological zones, representing more than 34 percent of the country, and surveyed 260 farmers randomly taken from 10 districts.

Regressing of net revenue on climate, household, and soil variables show that these variables have a significant impact on the farmers' net revenue per hectare. The study carries out a marginal impact analysis of increasing temperature and changing precipitation across the four seasons it witnesses. In addition, it examines the impact of uniform climate scenarios on farmers' net revenue per hectare. Additionally, it analyzes the net revenue impact of predicted climate scenarios from three models for the years 2050 and 2100. In general, the results indicated that increasing temperature and decreasing precipitation are both highly damaging contenders to Ethiopian agriculture.

My study, in essence while invigorating its journey towards its ultimate objective, also sought the answers for the three very basic questions as under:

1. Do our Oromia farmers and pastoralists able to perceive changes in weather patterns? If yes, what are they? What meteorological information presently 'is being made available in the two study areas chosen?
2. How should these gullible farmers and pastoralists be coping with and adapting to these changes in such unfavorable weather patterns?
3. What likely policy recommendations would emerge from this specific research study that will increase the resilience of poor farming community especially in the selected Oromia region in Ethiopia?

Except for the lowlands and pastoralist areas, mixed crop-livestock farming is the dominant farming type in my study area. However, there have hardly been attempts by previous researchers to look into the overall economic impacts of climate change in the context of these areas, particularly, in the role of livestock. This study effectively explored the crop, livestock inter-linkages and climate change implications for Ethiopian agriculture in general and the specific Oromia region in particular.

Research findings suggested that climate change could always have significant negative impacts on Oromia's agriculture unless appropriate adaptation measures were seriously undertaken. Moreover, increasing or decreasing rainfall associated with climate change was damaging to both crop and livestock agricultural activities. Analyzing the economic impact of climate change on agricultural production broadened and extended the understanding of the complex interlinks between climate change and agricultural productivity in the region and enhanced the

needs for informed policy making by the government and appropriate crop decisions by farmers.

REVIEW OF RELATED LITERATURE

There is a growing consensus in the scientific literatures that over the coming decades, higher temperature and changing precipitation levels caused by climate change will depress crop yields in many agrarian countries including Ethiopia (Orindi et al. 2015).

There has been an explosive growth in analyses of developing countries' vulnerability to climate change, including its economy-wide impacts. Reid et al. (2012), for example, used a CGE (Computable General Equilibrium) model to estimate the effects of changed agricultural productivity and health of fisheries on the Namibian economy. Their static analysis assumed little or no adaptation or economic changes. Another study by Thurlow et al. (2013) assessed the impact of climate variability and change on economic growth and poverty in Zambia, with a combined hydro-crop and dynamic CGE model. Their findings revealed that climate variability has cost the country US\$ 4.3 billion over the last 10-year period.

Zhai et al. (2014) examined the potential long-term impacts of global climate change on agricultural production and trade in the People's Republic of China, using an economy-wide, global CGE model, as well as simulation scenarios of how global agricultural productivity may be affected by climate change up to 2080.

The Development Prospects Group (2014) examined the economic impacts of climate change on Ethiopia. They used the 2012/2013 social accounting matrix for Ethiopia, constructed by the Ethiopian Development Research Institute (EDRI) and the Institute of Development Studies (IDS) at the University of Sussex. They estimated impacts of climate change, seen as changes in mean temperatures and rainfall, on agricultural productivity with a Ricardian model. The study reported the outcomes of five simulation runs of the model, in addition to a baseline with no climate-related shocks. The first simulation reproduced Ethiopia's historical stochastic experience. A key finding of the study is that, in the worst-case scenario, real GDP in the final year (in a period of next 25 years) would be 46 percent lower than in the baseline.

I drew some conclusions from the Ethiopian studies already reviewed. First, few studies looked into the impacts of climate change in Ethiopia in general or its economy-

wide impact in particular. Second, most of the studies focused on the microeconomics of climate change. However, climate change may have area-specific effects above the household or micro level. For example, agro ecology-based analyses may provide better (or at least additional) insight into the impact of climate change. Third, even though mixed crop and livestock farming dominate Ethiopian agriculture, climate-change studies (Deressa 2011; Deressa, Hassen, and Ringler et al. 2012) have all focused on crop agriculture, disregarding the major role of livestock.

Intuitively, however, I expected that climate change would also affect livestock production and reduce farm incomes to the already poor farmers further. Hence, not including livestock production might underestimate the impact of climate change. There appeared to be significant interlinks (and trade-offs) between the crop and livestock subsystems of farm households, particularly in times of distress. This was another dimension of interest in climate-change studies, which behooved to look at the economy-wide impact of climate change in a way that included livestock production. Fourth, to my knowledge, previous studies on Ethiopia had not considered to link the climate change issue to the broader perspectives of economic growth and poverty alleviation.

As per Environment for Development (Gebreegziabher et al. 2014), the economic performance of Ethiopia was dismal during most part of the twenty-first century till date. A useful indicator is total factor productivity (TFP) growth, which measures economic growth that cannot be explained by increases in factors of production, such as labor, capital, or land. It gauges production increases that are caused by more efficient application of technology or more efficient use of existing inputs, rather than merely increased use of inputs.

Consistently reviewing the existing literature I found that climatic variables had non-linear effects. A number of policy conclusions could easily be drawn from this study. First of all, it is important to analyze the impacts of climate change on agriculture and simultaneously understand the drivers behind farmers' adaptation practices. Secondly, the ongoing attention given to climate adaptation had the potential to go hand-in-hand with the long-term policy priority in increasing production and reducing vulnerability among poor farmers in developing countries.

The great potential for effective policy intervention seemed particularly evident from the factors that affect climate

change adaptation. Many of the significant factors could be addressed as part of rural development programs, such as literacy, formal extension, access to formal credit and provision of information about climate variables and adaptation options. Many of these activities are also traditional components under the umbrella of rural development programs. This stressed the importance of not treating climate change adaptation interventions separately from other rural development and poverty alleviation interventions, but rather complemented them with specific activities to raise the awareness of farmers regarding climate change and increased their capacity to adapt to the challenges that climate change implies.

Future research would, however, be necessitated to better understand the microeconomics of the adaptation process. The availability of micro panel data could provide more robust evidence on both the role of adaptation and its implications for productivity. Future research efforts should also be devoted to the distinction of the different adaptation strategies and the identification of the most successful ones for both the medium and longer term.

Further, future research on plot level adaptation measures would help to gain more insights in terms of plot level heterogeneity of climate change adaptation decisions. Given the information I had in my survey, the household level dummy variable was a preferred and a plausible alternative for measuring and estimating the Impact of Climate Change on agriculture whether a particular household had adopted an adaptation strategy to avert or minimize the adverse effects of perceived climate change.

OBJECTIVE OF THE STUDY

- To assess the economic impact of climate change on Oromian farmers of Ethiopia, using the Ricardian approach.
- To inform national/regional policy makers on proper adaptation options to counteract the harmful effects of such change.

RESEARCH METHODOLOGY AND ANALYSIS

Research was conducted in two administrative areas of Oromia region. Each area had distinct rainfall patterns and variable land use systems. The land use systems and areas constituting the foci of my study included these specific areas as under:

- Rift Valley mixed farming zone (Adamii Tulluu-Jido Kombolcha area in Oromia National Regional State, Central Ethiopia).
- Pastoral zone (Yabello area in Oromia National Regional State, Southern Ethiopia).

The methodology I used here was both qualitative and quantitative, consisting of in-depth interviews, focus group discussions, household surveys, and analysis of rainfall data from meteorological stations. In each of the two study sites, household surveys were conducted in different neighborhoods which are the smallest administrative units in Ethiopia, comprising of about 10-15 people. The data and variables included the household data for this study and were based on a sample of 260 farmers randomly selected from two agro-ecological regions of the country, believed to be representatives from the selected study region. A total of 10 districts (26 farmers from each) were purposely taken into account, from the lands of the Adamii Tulluu Jido kombolcha and also the lands of the Yabello of the Oromia National Regional State.

Survey was conducted using questionnaire. Researcher had used a stratified random sampling to select male and female-headed household. The field component took place between November and December 2016.

I used a Ricardian analysis, named after the economist David Ricardo (1772-1823), who studied factors of agricultural production. The model was useful for analyzing different climatic variables as rainfall and temperature, and examines the relationship between the value of land, soils and socio-economic variables. This uses actual observations of farm performance in various climatic regions to measure how long-term farm profitability varies with local climatic change while controlling for other factors.

By regressing farm values on climate and other control variables I was able to measure the marginal contribution of each variable to land value. I eventually studied the effects on crops and as well as livestock, both separately and taken together. The dataset used for this study comes from a survey of farm households in the assorted Oromia region of Ethiopia.

The interviews with the farmers took place during the 2016 production seasons. Almost all were small-scale farmers with rain-fed farmlands, as more than 95% of Ethiopian farmers are of this type. The study relied on monthly temperature data collected from the US Department of

Defense satellites. The monthly precipitation data came from the Africa Rainfall and Temperature Evaluation System (ARTES) (World Bank 2014). Soil data was obtained from FAO (2013). Hydrological data was predicted from a hydrological model for Africa (Strzepek & McCluskey 2014) which calculated the water flow through each district in the surveyed zones.

The dependent variable was measured as crop net revenue per hectare of cropland calculated as gross revenue from crops less total variable cost of production. The cost of household labor was not deducted but its effect was controlled by including household size as a proxy for household labor as a repressor in the model. Sensitivity of farm revenue to climate was estimated using seasonal climate means for summer, fall, winter and spring.

The independent variables included the linear and quadratic temperature and precipitation terms for the four seasons: winter (the average for December, January and February), summer (the average for June, July and August) spring (the average for March, April and May) and fall (the average for September, October and November). The independent variables also included household attributes and soil types. The three household variables in the model included namely, livestock ownership, level of education of the head of the household, distance to input markets and household size. The soil types included nitrosols and lithosols.

Study Result 1

Average net revenue per hectare (US\$) of the sample agro-ecological zones

Tepid to cool humid midlands	1470.7
Cold to very cold moist Afro-alpine	996.92
Tepid to cool pre-humid mid-highlands	1098.04
Tepid to cool moist mid-highlands	1632.97
Tepid to cool sub-moist mid-highlands	827.75
Tepid to cool sub-moist mid-highlands	755.36
Hot to warm humid lowlands	622.6
Hot to warm sub-moist lowlands	1063.17
Hot to warm pre-humid lowlands	187.55
Hot to warm arid lowland plains	2988.6
Hot to warm sub-humid lowlands	1268.92
Total	1347.56

The regression results above indicated that most of the climatic, household and soil variables have significant impacts on the net revenue per hectare. While the coefficients of spring and summer temperature are both negative, those of winter and fall are positive. The coefficients of winter and fall precipitation are negative, whereas for spring and summer they are positive.

The interpretations of the signs and magnitudes of impacts are further explained under the marginal analysis. As expected, the education level of the head of the household and the livestock ownership are positively related to the net revenue per hectare. The distance to input market place is negative, as farmers incur more cost in terms of money and time as the market place becomes further and further from their farm lands. The household size is negatively related to the net revenue per hectare because there are many dependent and unproductive people in rural Ethiopia (such as children, the elderly and the sick).

Study Result 2

The Marginal Impact Analysis

This analysis was undertaken to observe the effect of an infinitesimal change in temperature and rainfall on Ethiopian farming. It showed the marginal impacts of temperature and precipitation. Increasing temperature during winter and summer seasons significantly reduced the net revenue per hectare. Increasing temperature marginally during the winter and summer seasons also reduced the net revenue per hectare by US\$898.7 and US\$277.6 respectively. Increasing temperature marginally during the spring and fall seasons increased the net revenue per hectare by US\$537.8 and US\$1989.7 respectively.

During spring, a slightly higher temperature with the available level of precipitation enhances germination, as this is the planting season. During fall, a higher temperature is beneficial for harvesting. It is important that crops being planted have finished their growth processes by fall, and a higher temperature quickly dries up the crops and facilitates harvesting. Increasing precipitation during the spring season increases net revenue per hectare by US\$355.1.

As analyzed earlier, with slightly higher temperature and available precipitation (soil moisture level), crop germination is enhanced. Increasing precipitation levels during the winter significantly reduces the net revenue per hectare by US\$554.7. Winter is a dry season, so increasing precipitation, even slightly, with the already dry season may encourage diseases and insect pests. Marginally increasing precipitation during the summer and fall also reduces net revenue per hectare, by US\$20.9 and US\$59.2 respectively, even though the level of reduction is not very significant.

Marginal impacts of climate on net revenue per hectare (US\$)

Season	Winter	Spring	Summer	Fall
Temperature Variations	-997**	338*	-178*	1880**
Precipitation	-464**	225**	-38.9*	-84*

[* significant at 5%, ** significant at 1%]

The reduction in net revenue per hectare during the summer was due to the already high level of rainfall (extreme variability) in the country during this season, as increasing precipitation any further resulted in flooding and damage to field crops. The reduction in net revenue per hectare with increasing precipitation during the fall is due to the crops' reduced water requirement during the harvesting season. More precipitation damages crops and may reinitiate growth during this season.

The impact of climate change on the net revenue per ha was analyzed using uniformly changed temperature and precipitation levels. These uniform scenarios assumed that only one aspect of climate changes and that the change is uniform across the selected areas of study. These tests were done by increasing temperature first through 2.5°C and then by 5°C and reducing precipitation by 7% and later by 14%. Increasing temperature by 2.5°C and 5°C affected net revenue per hectare marginally. Moreover, reducing precipitation by 7% and 14% also reduced net revenue per hectare, even though the level of damage is comparatively small. These were studied through prototype experimentation in the lab and ascertained from previous researches.

These results were in line with the expectations that increasing temperature and reducing precipitation was evidently damaging to agriculture, indicating a need for policy interventions targeting adaptation through technology such as improved irrigation, and the use of drought tolerant and early maturing crop varieties.

Study Result 3

Impacts of uniform climate scenarios & Change in net revenue per hectare (US\$)

2.5°C(warming) -0.00016 (-1.31902E-05 %)	5°C (warming) -0.0003646 (-3E-05 %)
7% (decreased precipitation) -0.3941333 (-0.03249 %)	14% (decreased precipitation) -0.393894 (-0.03247 %)

Predicted values of temperature and rainfall from three climate change models (CGM2, HaDCM3 and PCM) were

also applied to help understand the likely impact of climate change on the subjected areas of Ethiopian agriculture. The predicted values for the scenario analysis were taken from the hydrological component of the project from Colorado University (Strzepek & McCluskey 2014).

SUGGESTIONS AND RECOMMENDATIONS

On the basis of my key research findings as the following, it is evident that unless appropriate adaptation options are considered on a war-footing, climate change will certainly have a negative impact on the small farmers vi-a-vis country's overall economy.

1. An increase in temperature will reduce agricultural and crop net revenue on a per hectare basis while it increases livestock net revenue in different areas covered under the study.
2. While warming temperature tends to be beneficial to livestock up to a certain extent, changing rainfall tends to be more harmful for its life-span.

I recommended the following for the development of a holistic approach to increase resilience, so that the communities involved could bounce back from climatic shocks effectively without much delay.

- To prepare and implement a national-level framework for guiding climate change adaptation and mitigation. Integration of two prime institutions viz. National Adaptation Program of Action (NAPA) and Plan for Accelerated and Sustained Development to End Poverty (PASDEP) might prove beneficial.
- To investing in agricultural research on the use of new crop varieties and livestock species that are more tolerant to natural diversities.
- To prepare long-term adaptation plans based on the sharing of best practices through community participation, civil society engagement, and the participation of academic and research institutions, with regular monitoring to identify promising practices for scaling up.
- To support pastoralists, especially women, through more efficient service delivery such as improved livestock, market linkages, and livestock health services. Also to improve access to feed and water for both livestock productions and household consumptions.

My research analysis shows that the magnitudes and directions of climate change impact on the agricultural activities of the selected Oromia region vis-à-vis the Ethiopian agriculture. Most of the results show that climate change, especially increasing as well as abruptly varying temperatures are really damaging. This has a policy implication worth thinking about and planning before any pathetic scenario occurs. The Ethiopian government must consider designing and implementing effective adaptation policies to counter the harmful impacts of climate change. Adaptation options may include investments in technologies such as micro-irrigation systems, improved water and soil management, appropriate dissemination of meteorological information, planting drought tolerant and early maturing crop varieties, strengthening institutional set-ups working in research, and educating farmers and encouraging production, use of local breeds, as well as disease tolerant breeds that can be adapted to local climatic stress and fodder sources. Farmers should be made convinced that owning livestock may buffer them against the effects of crop failures or low yields during harsh climatic conditions.

The study also showed that temperature and rainfall greatly affect livestock net revenue too besides routine agricultural activities. Socioeconomic variables, livestock ownership and distance from output markets also had significant and positive relationships to livestock net revenue, whereas distance from the input (seeds and fertilizers) markets had significant negative relationship. On the other hand, crop net revenue was dependent on soil types, access to irrigation, household size and distance from input markets. Evidently, livestock ownership, access to extension programs and access to credit have a distinct effect in the overall scenario.

The expert guidance being received from the Environment for Development initiative, a capacity building program in environmental economics, is focused on international research collaboration, policy advice, and academic training. It consists of centers in Central America, Chile, China, Ethiopia, Kenya, South Africa, Sweden, Tanzania, and the US (Resources for the Future in Washington, DC). Financial supports are provided by the Swedish International Development Cooperation Agency (Sida).

It is suggested that developed countries have the responsibility not alone to scale-down emissions that cause climate change, but also help developing countries like Ethiopia in effectively adapting to climate change impacts.

Climate change does impact the poorest first, despite the fact that they hardly contribute to the crisis. As global climate change negotiations continue, world leaders must not forget the fact that poor people are under severe compulsions in dealing with the negative impacts of a changing climate every day.

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Role of Sustainable Tourism in Make in India: The Road Map Ahead

M.K. Singh and Sonal Sharma

ABSTRACT

Sustainability is a topic of great concern in and around the world. The vision of ministry of tourism to make India a preferred tourism destination in the world, by promoting sustainable tourism to enhance the competitiveness of Indian Tourism Industry. With the growing recognition of tourism as the source of employment generation, infrastructural developments, market expansion for traders and manufacturers, promotion of transport, for harmonious relationship between various countries across the world, there is a need arises to look in to the main aspects of tourism that leads to growth and economic development of a country. Sustainable tourism has been defined by so many thinkers and scientists in so many ways as Responsible Tourism, Eco-Tourism and Geo-Tourism. Sustainable tourism can be achieved by: protection of environment, conservation of wild life, cultural heritage and traditional values. India has a lot of potential to provide for tourism development with its rich history in terms of ancient monuments, temples and churches, art and culture, mountains, sea beaches, wild life, medical, and many more. History and background of destinations, Infrastructure developments, hospitality, easy accessibility, financial aspects, these are some of the factors that taken in to consideration by a tourist for their visits. Growth and development of tourism in India depends on sustainability.

INTRODUCTION

Tourism is the largest as well as the fastest industry of the world. Tourism in India accounts for 6.8% of the GDP and is the third largest foreign exchange earner for the country. Tourism is a labour-intensive sector and provides employment opportunities to low and semi-skilled workers; women comprise 70% of work force and 50% of the workforce below 25 years of age as per UNCTAD and FICCI Report, 2010. Tourism is inclusive and sustainable sector. It promotes development of Micro and Small and Medium Enterprises. Tourism revitalizes and preserves culture and ethnic art forms. It is important to protect and conserve the biodiversity of tourist places for the development of a country. In order to deal with this issue, sustainable tourism activities should be encouraged.

**Table 1 : Tourism Statistics
Scenario in Indian Economy**

Year	% Share in GDP	% Share in Employment
2009-10	6.77	10.17
2010-11	6.76	10.78
2011-12	6.76	11.49
2012-13	6.88	12.36

Source: 2009-10 and subsequent years estimated by NCAER Reports

The UN World Commission on Environment and Development adopted the idea of sustainability in the "Brundtland report" in 1987 and defined "sustainable development" as follows: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." UNEP, 1987.

Key words

Make in India, Tourism,
Sustainable, Environment,
Stakeholders

World Tourism Organization (UNWTO) defined sustainable tourism as “Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities”. Sustainability is essential in all forms of tourism in order to make India a perfect tourist destination in the world. Retain environmental sustainability as a prerequisite of tourism development.

OBJECTIVES OF STUDY

- To study the Role of Sustainable Tourism.
- To study the Role of Tourism in Make in India from the perspective of Sustainability.
- To find out the Challenges and the Strategic Steps for its proper implementation.
- To highlight the new initiatives started by the Ministry of Tourism, Government of India.
- To provide Recommendations and Suggestions for the policy makers and heads of the institutions.

TYPES OF TOURISM



Figure 1

1. Cultural Tourism

Cultural tourism includes tourism of art & architecture, local traditions, fairs and festivals, forts and monuments, theatre and museums that attracts tourists in and around the world for the knowledge and information’s about the destination.

2. Adventure Tourism

According to the U.S. based Adventure Travel Trade

Association, adventure travel may be any tourist activity, including two of the following three components: a physical activity, a cultural exchange or interaction and engagement with nature.

3. Rural Tourism

Rural tourism focuses on rural lifestyle. Many rural villages are facilitating this type of tourism because many foreigners are interested to know about the customs and traditions of rural villages. This segment in the tourism industry has been rapidly growing in the past decade, leading to rural tourism perfect vacation destination for tourists.

4. Religious Tourism

Religious tourism, also commonly referred to as faith tourism, is a type of tourism, where people travel individually or in groups for pilgrimage, missionary, or leisure purposes.

5. Medical Tourism

Medical tourism or health tourism is the travel of people to another country for the purpose of obtaining medical treatment in that country.

6. Business Tourism

Business tourism involves travelling to one country from another for the purpose of business meetings, incentive trip, conferences and seminars, and exhibitions.

DIMENSIONS OF SUSTAINABLE TOURISM

• Socio-Cultural Aspects

There are both positive and negative aspects of tourism. Tourism brings about changes into the value system and behavior of people in the society in terms of life style, societal structure, and communication skill. To make tourism sustainable, it should respect the sentiments of people in the society. Sustainable tourism meet the need the present tourists without compromising the socio-cultural aspects of community. Tourism helps to preserve community inherent culture and inculcate new values and systems. The negative aspects of tourism deals with ethical issues, cultural clashes and conflicts, threat of terrorism, crime, and child labour.

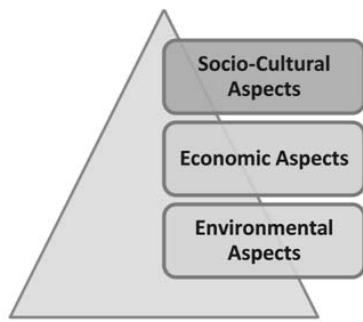


Figure 2

- **Economic Aspects:**

Travel and tourism is an economic activity of a country and contributes to its GDP and thus have its impact on economic state of a country. Sustainable tourism contributes to economic growth and potential for sustainable development. Tourism generates employment opportunities and creates linkages with other sectors particularly agriculture and service providers in an economy and thus leads to infrastructural developments in a country in terms construction of roads, highways, bridges, metro, flyover, airports, railways etc.

- **Environmental Aspects**

An environmental aspect of tourism deals with natural resources, pollution and infrastructure developments. Tourism poses a threat to natural and cultural resources, such as water supply, beaches, and heritage sites, through overuse. It also causes increased pollution through traffic emissions, littering, increased sewage production and noise. In spite of negative impacts Tourism also helps to promote conservation of wildlife and natural resources as these are the tourism assets by charging entrance fees and guide fees.

Sustainability principles refer to the environmental, economic, and sociocultural aspects of tourism development, and a suitable balance must be established between these three dimensions to guarantee its long-term sustainability.

ROLE OF SUSTAINABLE TOURISM IN MAKE IN INDIA

- It provides lots of investment opportunities to tour operators and travel agencies to cater to the needs of tourists of various interests and purposes.

- It provides ready market for rural tourism, rural villagers and households; women's and other semi-skilled workers can sell their handmade products (rural art and craft, textiles and handlooms, jewellery and naturemade products that represent local culture and traditions to tourists.
- It also offers opportunities to invest in hotels, restaurants, resorts, villas, heritage hotels, convention centre, garden, cinema halls, health care centres and hospitals, beauty clinic, motels and the like.
- It also encourages people to save the beauty of environment, our Himalayas, the revenue generating centre because of its scenic beauty of high mountains and deep green forests and wild animals that attracts millions of tourist in and around the world every year.
- India vast and beautiful coastline and undisturbed islands make this a perfect choice destination for cruise tourists.
- Presence of world class medical facility also encourages and promotes medical tourism in India.
- Tourism sustainability is very important to cater to the needs of foreign tourist arrival in India which is 6.97 Million foreign tourist arrivals in 2013, registering an annual growth of 5.9% over the previous year as per the report of Ministry of Tourism, Government of India.

FACTORS DETERMINING TOURISM SUSTAINABILITY

- Sustainable tourism depends upon self responsible tourism. The long term success of tourism destination depends upon its management strategies for tourism in order to make a perfect place for tourism in and around the world.
- Regular monitoring, reviewing and evaluating tourism performance with management strategies is required for long term sustainability.
- Continuous improvement of a tourist destination in terms of infrastructure, health and hygiene factor, hospitality, Cost Factor, law order and governance, safety and security, food custom, knowledge and availability of information's.

STEPS TO ACHIEVE SUSTAINABILITY

1. **Responsible Tourism:** To ensure the long term appeal of destination, responsible tourism strategy is a must. It is a matter of survival of natural resources, heritage sites, temples, and the most important human beings.
2. **Restore and Preserves Culture and Ethnic Art Forms:** Restoration of culture strengthens the culture values of the society and provides ample scope for research and innovation.
3. **Checks Migration to Urban Areas:** The study of movement of population in different parts of the country for social, economic or political reasons helps in understanding the dynamics of the society better.
4. **Development of Tourism Infrastructure:** Infrastructure plays a very significant role in tourism development. An infrastructural development in tourist destinations is essential for sustainable tourism.
5. **Promotion and Marketing of Tourist Destinations** in an Around the World: Marketing is a very important tool to promote the tourism destinations. Successful marketing of destinations attract potential travellers and also increase its number year on year.
6. **Skill Development:** Skill development and training programme organized by central and state governments and international organization is a huge support for tourism development
7. **International Cooperation:** To promote sustainable and responsible tourism development models and exchange best practice.

Table 2 : India Tourism Statistics

Top 10 States/UTs of India in Number of Domestic and Foreign Tourist Visits - 2013-2014							
S. No.	State/UT	2013		2014		Growth Rate	
		Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
1	Tamil Nadu	244232487	3990490	327555233	4657630	34.12	16.72
2	Uttar Pradesh	226531091	2054420	182820108	2909735	-19.30	41.63
3	Karnataka	98010140	636378	118283220	561870	20.68	-11.71
4	Maharashtra	82700556	4156343	94127124	4389098	13.82	5.60
5	Andhra Pradesh	98017783	69552	93306974	66333	-4.81	-4.63
6	Telangana	54084367	153966	72399113	75171	33.86	-51.18
7	Madhya Pradesh	63110709	280333	63614525	316195	0.80	12.79
8	West Bengal	25547300	1245230	49029590	1375740	91.92	10.48
9	Bihar	21588306	765835	22544377	829508	4.43	8.31
10	Rajasthan	30298150	1437162	33076491	1525574	9.17	6.15

Source: India Tourism Statistics, Ministry of Tourism, Govt. of India

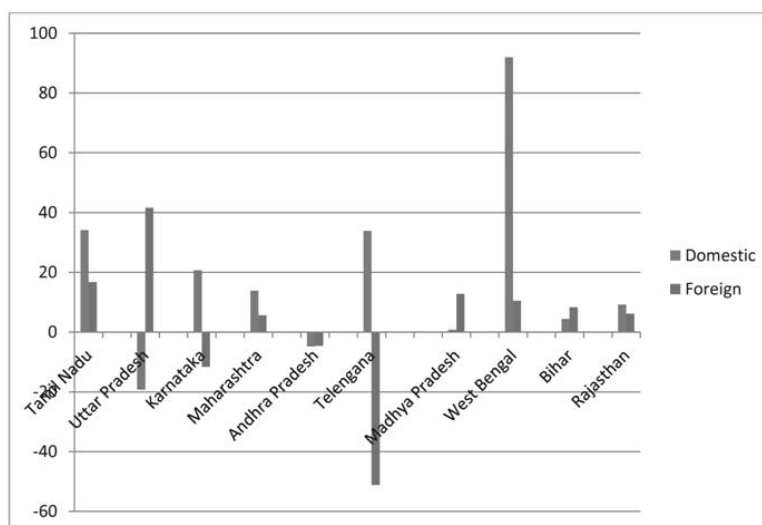


Figure 3

New Initiatives Started by the Ministry of Tourism during Celebrations of Good Governance Day on 26th December, 2014:

1. **Swachh Bharat Swachh Smarak E-Posters** - Taking a cue from "Swachh Bharat", this is an initiative to see a cleaner India for protecting and preserving the sanctity of monuments of national heritage. To aid this, Ministry of Tourism has launched a special poster with Prime Minister's message requesting the tourists and the people of the nation to wholeheartedly engage themselves in the cleanliness of their surroundings and help create a Swachh Bharat, Swachh Smarak.
2. **Welcome Cards** - India is known universally for its hospitality. Going a step further, the Ministry of Tourism launched the special welcome cards that will be handed to all the tourists, landing at our 9 International airports where Tourist Visa on Arrival Enabled with Electronic Travel Authorization facility is operational. This card will carry the information of the local India Tourism office along with online and offline contact information which the tourists can use in case of any queries. The main idea behind this being to make the experience of exploring the country hassle free.
3. **Incredible India Calender 2015** - The much acclaimed and sought after "Incredible India" Calendar 2015 turns back the pages of history and showcases some of the country's greatest architectural marvels as they were years before. The evocative pictures tell us about our illustrious past and remind us of our responsibility to preserve it for the generations to come.
4. **Launch of Booklet on "Badte Kadam" A Hunar Se Rozgar Tak (HSRT)**
Initiative - In order to allow participation of the private sector in the HSRT initiative on a higher scale, higher so as to enhance the programme's reach and delivery, it has been decided to allow the following agencies/organisations to implement the programme:
(i) Industrial units, associations of industries and professional / skill developing agencies with proven credentials; and
5. **Swachh Bharat Swachh Pakwan (Hunar Zaika)** - The street food vendors constitute a significant percentage of the hospitality service providers, are part of the Indian milieu through the ages and have a pan India presence. This program is aimed at upgrading the skills and hygiene standards of Street Food Vendors, so that they become a distinctive aspect of the Indian tourism. The Ministry of Tourism is partnering with the National Association of Street Vendors of India (NASVI) for the specific purpose of orientation, skill testing and certification of the vendors.
6. **Incredible India Toll Free Helpline for Tourists with Short Code 1363/1800 -111363** - On a pilot basis, the Ministry of Tourism has set up the 'Incredible India Help Line' to be operated in-house to address and guide the tourists during any emergency which may include medical, crime natural calamities or on being stranded. This service will be available as toll free on telephone 1800111363 or on a short code 1363.
7. **Mega Project** - Destination Development of Gwalior. Gwalior is abundant in natural resources and forests, but lacks tourism facilities required to open new vistas of tourism in the state and facilitate local artisans in sustainable development of their skills for their livelihood. The State Govt. had therefore proposed a Mega Destination Development Plan for development of tourism in areas which are least developed. The project for an estimated amount of Rs. 24.93 cr has been sanctioned by the Ministry of Tourism.

INITIATIVES OF MINISTRY OF CULTURE

1. Launching of Web based E-Ticketing :

To facilitate visitors to the monuments in getting better access, the facility of E-ticketing has been launched. This facility will be available at some of the monument which are frequently visited by a large number of tourists. In the first phase, the facility for E-ticketing for Taj Mahal, Agra and Humayun's Tomb, New Delhi is available from 25.12.2014.

2. 25 Model Monuments (Adarsh Smarak) -

ASI has identified following 25 monuments to be included under Model Monuments from among the 3680 monuments & sites of national importance under its protection:-

Table 3

1	Leh Palace, Leh, J&K	14	Sravasti, UP
2	Humayun's Tomb, New Delhi	15	Sarnath, UP
3	Qutb Complex, New Delhi	16	Vaishali-Kolhua, Bihar
4	Red Fort, Delhi	17	Khajuraho, MP
5	Hazarduari Palace, Murshidabad, WB	18	Mandu, MP
6	Shore Temple, Mahabalipuram	19	Martand Temple, Kashmir
7	Elephanta Caves, Mumbai Maharashtra	20	Thanjavur-Brihadeshwar, Tamil Nadu
8	Taj Mahal, Agra, UP	21	St Angelo Fort, Kerala
9	Kumbhalgarh Fort, Rajasthan	22	Masur Rock-Cut Temple, Himachal Pradesh
10	Rani-ki-Vav, Gujarat	23	Rang Ghar, Sibsagar, Assam
11	Fatehpur Sikri, Agra, UP	24	Konark Temple, Odisha
12	Hampi, Karnataka	25	Daulatabad Fort, Maharashtra
13	Jageshwar Temples, Uttarakhand		

These monuments would be provided necessary tourist facilities including wi-fi, security, signages, encroachment free area, interpretation centres showing short films about the importance of monuments and signboards of Swachh Bharat Abhiyan mentioning the slogan 'Swachh Smarak: Swachh Bharat'.

3. Braille Book on Delhi Monuments:

The Archaeological Survey of India has produced a Braille Book on the monuments of Delhi. This book will be of great assistance to the visually challenged to read about the monuments of Delhi.

CONCLUDING REMARKS

Sustainable tourism can be achieved by responsible tourism. Tourism sustainability depends upon the behavior of tourists and the local people towards the

protection of environment, forest, wild life, beaches, temples, archeological sites. The main objective behind sustainability is to meet the expectations of future travellers and communities by sustainable measures like proper management of natural resources, organizing of workshops in rural and urban areas about the benefits of sustainable tourism and also train tourism officials and professional on their application, by collection of data and information about the impact of environment, economic, and social in the tourist destination.

The Road Map Ahead

- 1) Sustainable tourism is not a particular form of tourism rather; all forms of tourism should drive to be more sustainable.
- 2) Tourism industry provides benefits to the people of the society economically and socially and encourages them to build social capital and community development by conservation of environment. Thus, helps to maintain strong and cordial relations with other countries.
- 3) Tourism should be easily accessible for the tourists in order to untapped the potential of tourism.
- 4) Regular Training should be provided to accommodation providers to upgrade the quality of service as per the expectation of tourists.
- 5) Efficient Promotion and Marketing of regional products like agricultural products and artisan goods, for local value creation.
- 6) Climate change is recognized as a major global issue, with significant implications for tourism.
- 7) Addressing the issue of poverty in the light of India Tourism in order to uplift the poor sections of the society to allow them to come into the mainstream.
- 8) The quality management is the issue that needs to be addressed.
- 9) Improvement in transport condition is essential for domestic as well as foreign tourists.
- 10) Prosperity of tourism industry should be allowed but not at the cost of quality of life.
- 11) Interest of different stakeholders group must be protected while designing policies and programmes for sustainable tourism.

- 12) Sustainability is the responsibility of all those engaged in tourism and to know the impact of their actions on the environment.
- 13) Obligation on the part of the government sector to provide an environment that enables to achieve the issue of sustainability in a proper manner.

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Regional Disparity in Entrepreneurship Promotion-A Study with Special Reference to Industrial Estate Programmes for MSMEs in Kerala

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ABSTRACT

Entrepreneurship is considered as the engine of economic growth and can be used as an effective tool for employment creation, poverty eradication, balanced regional development and inclusive socio-economic development. MSMEs, by encouraging growth of local entrepreneurship with limited resources, can be used for rapid industrialisation across rural and urban areas. Successive governments have been implementing several programmes for the development MSMEs in the country. In order to bring balanced regional development, though these programme are expected to be implemented throughout the State uniformly, an empirical study shows that there is regional disparity in this regard and consequently those regions remain entrepreneurially backward. The study has been conducted in Kerala state, by comparing between its Northern and Southern Regions, in respect of Industrial Estate Programme 1999 initiated by Govt. of India.

INTRODUCTION

Economic growth and development requires vibrant and visionary participation of entrepreneurial community. It is seen as a key to economic development in many countries across the globe (Zahra 1999). Entrepreneurship promotes innovation, engenders competition, creates employment and thus contributes to economic wealth and spending power (Guasch, Kuznetsov and Sanchez 2002). According to Global Entrepreneurship Monitor Report (2000), 'about 70 percent an area's economic performance is dependent upon how entrepreneurial the area's economy is'. Entrepreneurship in the form of micro, small and medium enterprises enable inclusive development in an economy.

MSMEs are dealing with economic activities involving buying, selling goods and services along with engaging in other business functions on small and medium scale. They foster diversification of economic activities by introducing innovative products particularly to cater the local needs and thereby improves standard of living of local people. MSMEs form the fulcrum of job creation and income generation in many developing economies. As per the 4th Census of MSME sector (2011), in India, MSME sector employs 59.7 million persons spread over 26.1 million enterprises and in terms of value, the sector accounts for about 45 per cent of the manufacturing output and around 40 per cent of the total exports. MSMEs contribute about eight per cent of the GDP of the country.

LITERATURE REVIEW

Shetty (2015) has found that regional disparity in industrial development exist in India. The five major industrial states of India, i.e., Maharashtra, Tamil Nadu, Gujarat, West Bengal and Andhra Pradesh jointly accounted 40 per cent of total location of all large

Key words

Industrial Estate, Entrepreneurs, Regional disparity, Northern Region, Southern Regions, Kerala

factories, 55 per cent of total industrial employment, 59 per cent of total industrial output and 58 per cent of value-added... In respect of small scale industries, there has been a considerable concentration of such industrial unit in these five major industrially advanced states. Manimekalai (1998) states that the industrial estates programme has encouraged many first generation entrepreneurs to take up industrial activity. The factors which facilitated were better infrastructural facilities, good work sheds and common service facilities. Jayachandran (1998) stresses the need for providing basic infrastructural facilities in industrial estates. Pannalal (1997) concluded that Engineering industries to thrive in the industrial estates. Sharma (1985) notices that accommodation in industrial estates and high demand for a particular product or service are the major factors induced the emergence of entrepreneurial class. Thanulingam and Natarajan (1989) concluded that the incentives have been effective in attracting individuals into the entrepreneurship in SSIs. However, the entrepreneurs with necessary skills, training, technical know-how and experience are not ready to invest in small scale units due to paucity of funds and uncertainty about getting adequate profit. In backward regions, the economic and social overheads are poor and hence tempo of growth of entrepreneurship is also low. Hence, the industrial estates are important to build up the necessary atmosphere for the growth of entrepreneurship 'The behaviour of individual entrepreneurs and the socio-economic and political infrastructure promotes or hampers the creation and development of entrepreneurship' (Sexton and Smilor 1989). Socio-economic characteristics of region have an important influence on emergence and development of entrepreneurship. Schmenner (1982) points that site and plant difficulties such as higher labour costs and unfavourable labour climate guide enterprise location decisions.

Socio-economic factors may be as important as the availability of loans, technical assistance, physical facilities and information. (Rogoff et al. 2004). 'Report of the Working Group on MSME Growth for 12th Five Year Plan 2012-17' (2012) has commented that maintenance of Industrial Estates (maintenance of roads, drainage, sewage, power distribution and captive power generation, water supply, dormitories for workers, common effluent treatment plants, common facilities, security, etc.) is a critical component for successful functioning of the industrial enterprises in any industrial estate / industrial area.

Report of Fourth All India Census of MSME recognises regional disparity in entrepreneurial development in as follows-'The Policy of Reservation of Products for Exclusive Manufacture in SSI (now MSEs)' was initiated in 1967 with the objective of achieving socio-economic development, through development and promotion of small units all over the country. This was expected to result in countering the challenges of regional industrial imbalances, employment generation through self-employment ventures, increased productivity etc. Uneven distribution of basic resources needed for industrial development may lead to concentration of industries in a few centres, causing regional disparities in entrepreneurial development.

INDUSTRIAL ESTATES PROGRAMME

Industrial estates establishing programme was started in 1955 with the objective of encouraging and promoting small scale industry in India. Industrial estates provide built in factory sheds, power and water facilities, roads, godowns, common facility services and workshops. Other facilities are subsidy on rent for factory accommodation, allotment of sheds on hire purchase basis or outright sale, concessional tariff for water and power facility etc. They facilitate overall promotion and development of small Industries.

SIDCOs are government owned companies constituted in States in India for promoting entrepreneurship in MSMEs. Kerala Small Industries Development Corporation establishes and run mini and major industrial estates in different parts of the state for the development of MSMEs. It provides infrastructure facilities such as land, work shed, water, marketing the products etc., in their major and mini industrial estates and industrial parks. It develops areas and provides necessary facilities for entrepreneurial activities

NORTHERN AND SOUTHERN REGIONS OF KERALA

The study has been conducted in Kerala State. Kerala State, covering a geographical area of 38863 Square Kilometer (Sq. Km) which is only 1.18 percent of the Indian Union but accounts for 2.76 per cent of the total population. The State accommodates a population of 334,06,060 (2011 Census). The State has the highest literacy rate of 94 per

cent among Indian states. Prior to the formation of Kerala state in 1956, there were two distinct regions (princely states) viz., Travancore-Cochin and Malabar. Hence the present study has classified the State into the northern (Malabar) and southern (Travancore-Cochin) regions. The southern Region (erstwhile Travancore-Cochin Region) consisting of Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha, Idukki, Kottayam, Ernakulam and Thrissur, and The northern Region (erstwhile Malabar Region) consisting of Palakkad, Wayanad, Kozhikode, Malappuram, Kannur and Kasaragod.

STATEMENT OF PROBLEM

Industrial Estates/parks are the areas particularly earmarked for entrepreneurial activities. Normally common facilities such as road, water supply, electricity etc., are provided in these estates. Each industrial estate is managed/controlled by a govt. agency. In Kerala District Industries Centres, KINFRA and SIDCO have developed industrial estates and allotted space to individuals who apply for area in order to start their entrepreneurial units. Industrial Estates may be major or mini on the basis of the area availability of area. Entrepreneurial development in a region requires support of infrastructural facilities. Industrial estates provide shed or venue for setting up units, along with various facilities and services needed for operating an enterprise effectively. In a State which is run by same government and rules/ regulations, is expected to have uniform availability of infrastructural facilities, particularly industrial estates. Hence the present study examines whether there is any regional difference in Kerala in the providing of industrial estates by various govt. Agencies.

METHODOLOGY

The study uses secondary data as on 2014, in respect of industrial estates, available in the Economic Review published by State Planning Board, Govt. of Kerala. Percentages are used to analyse data in respect of industrial estates

OBJECTIVE OF THE STUDY

To examine whether there is any disparity between the northern and southern regions of Kerala in respect of providing the industrial estates by various govt. Agencies.

ANALYSIS AND FINDINGS

The table 1 shows the status of number of mini industrial estates under SIDCO, area allotted and number of working units in them, in the northern and southern regions of Kerala.

Table 1:-Mini Industrial Estates under SIDCO in the Northern and Southern regions of Kerala as on March 2014

Area	Number of Industrial Estates	Area Allotted (cents)	Number of Working Units
Northern Region	12	1113	115
Per Every Lakh Population	0.082	7.594	0.785
Southern Region	24	1980.77	174
Per Every Lakh Population	0.128	10.575	0.929
Kerala State	36	3093.77	289
Northern Region as % of Total	33.3	36.0	39.8
Southern Region as % of Total	66.7	64.0	60.2

Source: Economic Review 2014, SIDCO.

The table shows that majority of mini industrial estates developed by SIDCO are in the southern region. 66.7 per cent of the mini industrial estates developed by SIDCO are in the southern region as against only 33.3 per cent in the northern region. The 64 per cent of the allotted areas are in the southern region as compared to only 36 per cent of the allotted areas in the northern region. 60.2 per cent of the working units, in mini industrial estates of SIDCO, are in the southern region as compared to only 39.8 per cent in the northern region. The number of industrial estates for every lakh population in the northern region is only 0.082 as against 0.128 in the southern region. The area allotted in industrial estates for every lakh population in the northern region is only 7.594 as against 10.575 in the southern region. The number of working units in industrial estates for every lakh population in the northern region is only 0.785 as against 0.929 in the southern region.

Thus it can be concluded that, the number of mini industrial estates developed by SIDCO, its area allotment and units working in them etc., are lower in the northern region as compared to that in the southern region.

The table 2 shows the number of mini industrial estates under District Industries Centre and number of units working in them in the northern and southern regions.

Table 2 Mini Industrial Estates under District Industries Centre in the Northern and Southern Regions of Kerala as on March 2014

Area	Number of Industrial Estates	Total Number of SSI Unit	Number of Working Units
Northern Region	28	246	212
Per Every Lakh Population	0.191	1.678	1.446
Southern Region	61	531	471
Per Every Lakh Population	0.326	2.835	2.514
Kerala State	89	777	683
Northern Region as % of Total	31.5	31.7	31.0
Southern Region as % of Total	68.5	68.3	69.0

Source: Economic Review 2014, Directorate of Industries and Commerce, Govt. of Kerala.

The table shows that 68.5 per cent of the mini industrial estates promoted by District Industries Centre are in the southern region as against only 31.5 per cent in the northern region. It also shows that 68.3 per cent of the total number of SSI units in mini industrial estates (promoted by District Industries Centre) is in the southern region as against only 31.7 per cent in the northern region. Also 69 per cent of the number of working units in mini industrial estates (promoted by District Industries Centres) is in the southern region as against only 31 per cent in the northern region. Thus it shows that with regard to mini industrial estates by DICs also the northern region does not have a proportionate share as compared to that of the southern region.

The number of industrial estates, promoted by DICs, for every lakh population in the northern region is only 0.191 as against 0.326 in the southern region. The total number of SSI units in industrial estates promoted by DICs for every lakh population in the northern region is only 1.678 as against 2.835 in the southern region. The number of working units in industrial estates for every lakh population in the northern region is only 1.446 as against 2.514 in the southern region. Thus it can be concluded that, the number of mini industrial estates developed by DIC, its area allotment and units working in them etc., are lower in the northern region as compared to that in the southern region.

The table 3 shows the status of major Industrial Estates under SIDCO and area allotted and number of working units in the northern and the southern regions of Kerala.

Table 3 : Major Industrial Estates under SIDCO and Area Allotted and Number of Working Units in the Northern and Southern Regions of Kerala as on March 2014

Area	Number of Industrial Estates	Area Allotted (cents)	Number of Working Units
Northern Region	6	6036.07	270
Per Every Lakh Population	0.041	41.184	1.842
Southern Region	11	12871.92	535
Per Every Lakh Population	0.059	68.718	2.856
Kerala State	17	18907.99	805
Northern Region as % of Total	35.3	31.9	33.5
Southern Region as % of Total	64.7	68.1	66.5

Source: Economic Review 2014, SIDCO

The table shows that 64.7 per cent of the major industrial estates promoted by SIDCO in Kerala are in the southern region as against only 35.3 per cent in the northern region. Also 68.1 per cent of the area allotted in industrial estates are in the southern region as against only 31.9 per cent in the northern region. It also shows that 66.5 per cent of number of working units in Kerala is in the southern region as against only 33.5 per cent in the northern region. Thus it shows that with regard to major industrial estates promoted by SIDCO, also the northern region does not have a proportionate share as compared to that of the southern region.

The number of industrial estates, promoted by SIDCO, for every lakh population in the northern region is only 0.041 as against 0.059 in the southern region. The area allotted in industrial estates for every lakh population in the northern region is only 41.184 as against 68.718 in the southern region. The number of working units in industrial estates for every lakh population in the northern region is only 1.842 as against 2.856 in the southern region.

Thus it can be concluded that, the number of major industrial estates developed by SIDCO, its area allotment and units working in them etc., are lower in the northern region as compared to that in the southern region.

The table 4 shows the status of Development Area (DAs)/ Development Plots (DPs) under District Industries Centre in the northern and southern regions of Kerala.

Table 4: DAs/DPs under District Industries Centre in the Northern and Southern Regions of Kerala as on March 2014

Area	Number of DAs/DPs	Area Allotted	Number of Working Units
Northern Region	10	880.03	531
Per Every Lakh Population	0.068	6.004	3.623
Southern Region	26	1169.95	1656
Per Every Lakh Population	0.139	6.246	8.841
Kerala State	36	2049.98	2187
Northern Region as % of Total	27.8	42.9	24.3
Southern Region as % of Total	72.2	57.1	75.7

Source: Economic Review 2014, Directorate of Industries and Commerce

The table shows that 72.2 per cent of the DA / DPs promoted by DIC in Kerala are in the southern region as against only 27.8 per cent in the northern region. Also 57.1 per cent of the area allotted industrial estates are in the southern region as against only 42.9 per cent in the northern region. It also shows that 75.7 per cent of number of working units in DA / DPs promoted by DIC in Kerala is in the southern region as against only 24.3 per cent in the northern region. Not even a single DA / DP was promoted in Wayanad district in the northern region. Thus it shows that with regard to DAs / DPs promoted by DICs also, the northern region does not have a proportionate share as compared to that of the southern region.

The number of DAs / DPs, promoted by DICs, for every lakh population in the northern region is only 0.068 as against 0.139 in the southern region. The area allotted in DAs/DPs for every lakh population in the northern region is only 6.004 as against 6.246 in the southern region. The number of working units in DAs / DPs for every lakh population in the northern region is only 3.623 as against 8.841 in the southern region.

Thus it can be concluded that, the number of major industrial estates developed by DIC, its area allotment and units working in them etc., are lower in the northern region as compared to that in the southern region.

CONCLUDING REMARKS

The paper has analysed the status of Industrial estates for entrepreneurship for a potential and existing entrepreneurs in the northern and the southern regions of Kerala. It has found that the northern region has backwardness in respect of access to almost the basic resources necessary for entrepreneurship in MSMEs as compared to that of the southern region. More major and mini Industrial Estates should be developed in the northern region on an extensive basis with state of the art facilities. State and Central Government agencies like DIC, SIDCO, KSIDC, KINFRA etc., need to give more attention in the northern region in order to acquire more land for estates, create basic and advanced facilities for the functioning of entrepreneurial unit and allot them to most deserving entrepreneurs.

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Liquidity Management- A Case Study of Oil and Natural Gas Corporation Limited

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ABSTRACT

This paper has been an attempt to make an assessment of the liquidity management -a case study of Oil and Natural Gas Corporation Limited. This study helps to assess the significance of liquidity management by selecting a few important parameters such as current ratio, acid test ratio, debtors to sales ratio etc. and makes a detailed analysis of the performance of the corporation so that fruitful suggestion could be given to improve its performance in future. Since, financial analysis is a tool for scientific evaluation of the liquidity and financial strength of any business concern; the same has been used in the present research study. The techniques of financial statement analyses has been applied for the purpose of assessment of liquidity position of the company. The study also tries to examine the impact of liquidity on the profitability position of Oil and Natural Gas Corporation Limited. The data have been collected from the annual report of Oil And Natural Gas Corporation Limited covering the period of ten years starting from 2005-06 to 2014-15 and the data analysis was have been tested by using one sample of student t-test.

INTRODUCTION

Liquidity plays a significant role in the successful functioning of a business unit the term 'Liquidity' means the ability of an organization to realize value in money the post liquid among all assets. It implies conversion of assets into cash during the normal course of business and to have regular uninterrupted flow of cash to need outside current liabilities as and when due and payable and also ensure availability of money for day-to-day business operations. The concept of liquidity in case of companies has to dimensions via; the quantitative and qualitative. The quantitative aspect includes the quantum, structure and utilization of liquid assets. The qualitative aspect emphasizes upon the ability of a firm to need all present and potential demand on cash in a manner that minimize cost and maximize the value of the business. The liquidity is a vital factor in business operations. For the very survival of business, the firm should have requisite degree of liquidity. It should be neither excessive nor inadequate.

Liquidity refers 'to the ability of a concern to meet its current obligation as and when these become due. The short-term obligation is met by realizing amounts from current, floating or circulating assets. The current assets should either be liquid or near liquidity. These should be convertible into cash for paying obligations for short-term nature. Comparing them with short-term liabilities it would assess the sufficient of insufficient current assets. If current assets can pay off current liabilities, then the liquidity position will be satisfactory. On the other hand, if current liabilities may not be easily met out of current assets then liquidity position will be bad.

The short-term creditor of the company like supplier of goods on credit and commercial bank providing short-term loans are primarily interested in knowing the company's ability to meet its current and short-term obligations. If the firm fails to meet such current obligations due to lack of liquidity position its goodwill in the market is likely to be affected beyond repair. It will result in loss of creditor confidence in the company and

Key words

Liquid Assets, Absolute
Liquid Assets, Short Term
Solvency.

may cause winding of company. Even a high degree of liquidity is not good for the company because such situation represents unnecessary excessive fund tied up in current assets management. It is very important to maintain minimum liquidity position in a firm for profitability, so that company can maintain liquidity in business. Excessive liquidity means accumulation of ideal funds. Which may lead to lower profitability, increase speculation, and unjustified extension, extension of liberal credit terms, liberal dividend policy etc; whereas inadequate liquidity result in interruptions of business operations. A proper balance between these two extreme situations therefore should be maintained for efficient operation of business through skill full liquidity management. The need of efficient liquidity management corporate sector has become greater in recent years.

SIGNIFICANCE OF THE TOPIC

Liquidity management of the company plays an important role in running and operating the business activities smoothly. There should be a proper balance between solvency and liquidity. It also depends upon the size & nature of the business. Short term solvency also affects the profitability of the business. There must be balance between solvency & liquidity because lack of both in the company is a dangerous situation. So keeping all these views in mind I have chosen the topic of Liquidity Management- A Case Study of Oil and Natural Gas Corporation Limited (ONGC).

COMPANY PROFILE

ONGC was set up under the visionary leadership of Pandit Jawahar Lal Nehru. Pandit Nehru reposed faith in Shri Keshav Dev Malviya who laid the foundation of ONGC in the form of Oil and Gas division, under Geological Survey of India, in 1955. A few months later, it was converted into an Oil and Natural Gas Directorate. The Directorate was converted into Commission and christened Oil & Natural Gas Commission on 14th August 1956. In 1994, Oil and Natural Gas Commission was converted in to a Corporation, and in 1997 it was recognized as one of the Navratnas by the Government of India. Subsequently, it has been conferred with Maharatna status in the year 2010.

Today, Oil and Natural Gas Corporation Ltd. (ONGC) is, the leader in Exploration & Production (E&P) activities in

India having 72% contribution to India's total production of crude oil and 48% of natural gas. ONGC has established more than 7 Billion Tonnes of in-place hydrocarbon reserves in the country. In fact, six out of seven producing basins in India have been discovered by ONGC. ONGC produces more than 1.27 million Barrels of Oil Equivalent (BOE) per day. It also contributes over three million tonnes per annum of Value-Added-Products including LPG, C2-C3, Naphtha, MS, HSD, Aviation Fuel, SKO etc.

REVIEW OF LITERATURE

R.S. Chadda (1964): Study had been made on inventory management practices of Indian companies. The analysis suggested application of modern scientific inventory control techniques like operations research. These modern scientific techniques furnish opportunities for the companies, Companies can minimize their investment in inventory but there is continuous flow of production. He argued that industrially advanced country, like, USA, was engaged in developing highly sophisticated mathematical models and techniques for modernizing and redefining the existing tools of inventory investment.

Chakraborty (1973): studied the approached working capital as a segment of capital employed rather than a mere cover for creditors. He emphasized that working capital is the required fund to pay all the day-today operating expenses while running a business. He concluded that return on capital employed is an overall measurement of efficiency for running a business. Return on capital can be affected negatively by excess amount of working capital. In the same way very little working capital invested may reduce the earning capacity of the fixed capital employed over the succeeding periods.

B.S. Sharma (1974): The paper considered problems of financial planning in public undertakings in three stages of operation, i.e. gestation, operation and expansion. The study covered purposive sample of units initiated by the Central Government and which are administered by Fertilizer Corporation of India, Hindustan Steel Limited, Bokaro Steel Limited, Heavy Electricals Limited, Bhopal, Bharat Heavy Electricals Limited, New Delhi, Heavy Engineering Corporation Limited and Mining and Allied, Machinery Corporation Limited. He also focused on the art of working capital management in these enterprises. The result shows that requirement of working capital grows continuously.

Mishra (1975)

It is the study of six major public sector enterprises. He concluded that (i) inventory constitutes the most important component of working capital of public enterprises (ii) efficiency of working capital funds employed in receivables is terribly low in the selected enterprises and (iii) In all units both the current assets and the quick ratios are greater than their standards. Enterprises need to have proper control on receivables.

SK Bhattacharya & M Raghavachari (1977):

The study consisted of 72 large Indian companies. Many financial analysts have confidence on traditional financial ratios for finding out effectiveness of working capital management. They correlated corporate performance with the ideal ratios. The present study examined the validity of such practices and to identify a method for classification of those companies which manage their working capital more effectively than others.

Lambrix and Singhvi (1979):

Adopted working capital cycle approach in working capital management, also suggested that investment in working capital can be optimized and cash flows can be improved by reducing the time frame of physical flow starting from the receipt of raw material to the shipment of finished goods, i.e. inventory management, and by improving the terms and conditions on which firm sells goods as well as receipt of cash.

Lal (1981):

He studied Modi Steels Limited as a case study, his study focused on inventory management. He originated a model which involve price variable in inventory management; earlier price variable in inventory was not considered in that company. The analysis recommended solid policies, which would look after internal and external factors, ultimately it would help in bringing in efficient working capital management.

I M Pandey (1997):

Studied have been done in private sector manufacturing companies of Sri Lanka. The survey provided an empirical evidence of working capital management policies and practices. Information were gathered through questionnaires and interviews from chief financial officers of manufacturing companies listed on Colombo Stock Exchange. The main result of the study is that most

companies in Sri Lanka are adopting informal working capital policy. Managing director plays a unique part in formulating formal and informal policy. Company size has an influence on the overall working capital policy (formal or informal) and approach (conservative, moderate or aggressive) & review period. The study concluded that company's profitability has an influence on the methods of working capital planning and control.

OBJECTIVES OF THE STUDY

The main objectives of the present study are given as below:-

- i. To assess the significance of liquidity management by selecting a few important parameters such as current ratio, acid test ratio, debtors to sales ratio etc.
- ii. To examine and evaluate liquidity position of the company.
- iii. To identify the responsible factors this affects liquidity position of the company.

HYPOTHESIS OF THE STUDY

- H_{01} There is no significant impact of liquidity on the profitability position of ONGC Ltd.
- H_{02} There is no significant relation between current assets and current liabilities of ONGC Ltd.

RESEARCH METHODOLOGY

The data of ONGC Ltd. for the year (2005-2014) used in this study has been taken from secondary sources e.g. published annual reports of the company. Editing, classification and tabulation of the financial data, which are collected from the above-mentioned sources, have been done as per the requirement of the study. For assessing the financial performance of the liquidity position of the company, the technique of ratio analysis has been used for such analysis. The collected data has been analyzed in two ways:

- Analysis of liquidity ratio.
- Analysis of liquidity position.

Under analysis of liquidity ratio the following ratio have been analyzed:

- Current ratio
- Liquid or Quick ratio
- Absolute liquidity ratio
- Inventory turnover ratio
- Age of inventory ratio
- Debtors turnover ratio
- Average collection period
- Working capital turnover ratio

LIMITATION OF THE STUDY

This research has the following limitations which are:

- This study is based on secondary data and it is dependent on published and unpublished sources.
- This study is based only on monetary information and the non monetary factors are ignored.
- Non availability of sufficient literature and data.

ANALYSIS OF LIQUIDITY MANAGEMENT OF ONGC LIMITED

CURRENT RATIO: Current assets means all those assets, which are convertible into cash within a year such as marketable securities, debtors, stock , cash bank and prepaid expenses. Current liabilities include the obligations maturing within a year like creditors, bills payable, outstanding expenses, Bank overdraft and income tax liability. The current ratio is thus, a measure of the firm’s short term solvency. It includes the availability of current assets in rupees for every one rupees of current liability. A ratio of greater than one means that the firm has more current assets than current claims against it. Ideal of current ratio is 2:1 in normal condition.

Current Ratio = Current Assets/ Current Liabilities

Table 1 : Statement of Current Assets to Current Liabilities

(Rs. in Millions)

Year	Current Assets (Rs.)	Current Liabilities (Rs.)	Ratio
2005-06	368872.79	103136.92	3.58
2006-07	443954.15	136890.72	3.24
2007-08	498331.37	176082.67	2.83
2008-09	545999.56	211050.98	2.59
2009-10	537713.23	194999.65	2.76
2010-11	586436.06	237473.72	2.47
2011-12	365844.13	256979.54	1.42
2012-13	304268.63	174738.5	1.74
2013-14	298433	190797.65	1.56
2014-15	301632.54	191734.88	1.57
Mean	425148.55	187388.52	2.38
AGR	-1.82	8.59	-5.61
Standard Deviation (σ)	105644.58	42350.91	0.72
CV	24.85	22.60	30.46

Source: Annual Reports of ONGC for the year 2006-2015

Interpretation

As per the above table no 1, from the year 2006 to 2011, the ratio is above the ideal standard of 2:1 which means the organization had good liquidity position in beginning of the year. The highest value of 3.58 times was observed in 2006 and the least of 1.42 times in 2012. It showed an fluctuating trends during the study period. In the year 2006 the ratio increased to 3.58 times. But, after that the ratio decreased to 3.24, 2.83, 2.59 times respectively in the year 2007 to 2009. Then after one year 2010 the ratio increased to 2.76 times during the study period, average current ratio is 2.018. Current ratio of the company is satisfactory because the average ratio (2.018) is similar to the accepted standard of 2:1.

LIQUID RATIO OR QUICK RATIO

Quick ratio also known, as acid test or liquid ratio is a more rigorous test of liquidity than the current ratio. The term ‘Liquidity’ refers to the ability of firm to pay its short-term obligation as and when they become due. The two ratio’s determinants of current ratio as a measure of liquidity are current assets and current liabilities. Current assets include inventories and prepaid expenses, which are not easily convertible into cash within a short period. Quick ratio may be defined as the relationship between quick / current assets and current or liquid liabilities. An asset is said to be liquid if it can be converted into cash

within short period without loss of value. In that sense, debtors, receivables, short term investments, loans & advances, cash in hand and cash at bank and marketable securities are the most liquid assets. The ideal liquid ratio is 1:1.

Quick Ratio = Quick Assets/ Current Liabilities

Table 2 : Statement of Liquid Assets to Current Liabilities

(Rs. in Millions)

Year	Liquid Assets (Rs.)	Current Liabilities (Rs.)	Ratio
2005-06	341229.99	103136.92	3.31
2006-07	413616.57	136890.72	3.02
2007-08	463525	176082.67	2.63
2008-09	505392.85	211050.98	2.39
2009-10	490927.51	194999.65	2.52
2010-11	545246.22	237473.72	2.3
2011-12	314189.78	256979.54	1.22
2012-13	247224.69	174738.5	1.41
2013-14	239607.59	190797.65	1.26
2014-15	241997.27	191734.88	1.26
Mean	380295.75	187388.52	2.13
AGR	-2.91	8.59	-6.19
Standard Deviation (σ)	112097.45	42350.91	0.74
CV	29.48	22.60	34.92

Source: Annual Reports of ONGC for the year 2006- 2015

Interpretation

Table no. 2, shows that the situation of Quick ratio generally this ratio is considered as 1:1. From the year 2006 to 2011, the quick ratio of this company was at 3.31, 3.02, 2.63, 2.39, 2.51 times respectively. It means the acid test ratio or quick ratio is satisfactory in these years. But in the next year 2012 this ratio got decreased to 1.22 times. Then after that one year 2013 the ratio has increased to 1.41 times, but after two years the ratio reduced 1.26 times in both the years 2014 and 2015. It has been that this ratio has fluctuating during the study period. The highest ratio was 3.31 times in the year 2006 and the lowest ratio was 1.22 times in the year 2012. Average quick ratio is 2.13 so that this ratio is more than the normal standard of 1:1, liquid assets are more sufficient to provide a cover to the current liabilities.

ABSOLUTE LIQUID RATIO: Although receivables, debtors and bills receivable are generally more liquid than inventories yet there may be doubts regarding their

realization into cash immediately or in time. Hence, some authorities are of opinion that the absolute liquid ratio should also be calculated together with current ratio and acid test ratio so as to exclude even receivable from the current assets and find out the absolute liquid ratio. Absolute liquid assets included cash in hand and cash at marketable securities. The acceptable norm for this ratio is either 0.5:1 or 1:2.

Absolute Liquid Ratio = Absolute liquid assets/liquid liabilities

Absolute liquid assets = Cash in hand + Marketable securities

Liquid liabilities = Current liabilities - Bank overdraft

Table 3 : Statement of Absolute Liquid Assets to Liquid Liabilities

(Rs. in Millions)

Year	Absolute Liquid Assets (Rs.)	Liquid Liabilities (Rs.)	Ratio
2005-06	42792.65	65270.11	0.66
2006-07	136705.08	88169.7	1.55
2007-08	160143.04	109151.42	1.47
2008-09	121405.48	130150.9	0.93
2009-10	108279.29	120875.63	0.9
2010-11	143310.46	188148.86	0.76
2011-12	201245.65	234553.61	0.86
2012-13	132185.86	165636.62	0.8
2013-14	107988.77	182986.46	0.59
2014-15	27600.68	171759.1	0.16
Mean	118165.70	145670.24	0.87
AGR	-3.55	16.32	-7.58
Standard Deviation (σ)	48920.17	49128.62	0.38
CV	41.40	33.73	44.18

Source : Annual Reports of ONGC for the year 2006 - 2015

Interpretation

The table no. 3 shows the relationship between absolute liquid assets and liquid liabilities. In 2006-07 and 2007-08 the ratio is increased 1.55 and 1.47 because the amount of absolute liquid assets is higher than liquid liabilities which is very good for the company after that the ratio is slightly low from the year 2009 to 2015 during the study period because the ratio decreased up to 0.93 to 0.16 times. The ideal Absolute liquid ratio is taken as 0.5:1 or 1:2 but average absolute liquid ratio is 0.86 thus at the absolute liquid ratio is slightly similar to 1:2. Therefore, a company will having sufficient cash at the time of making the

payment of current liabilities. But end of the study period company needs to improve its short term financial position in the year of 2014-15.

INVENTORY TURNOVER RATIO

Inventory Turnover ratio establishes the relationship between the costs of goods sold with average stock. This ratio measures the velocity of conversion stock into sales. Usually, higher the inventory, the lesser the amount of money required to finance the inventory because more frequently the stocks are sold. A low inventory turnover ratio indicates an inefficient management of inventory, over investment in inventories, dull business, poor quality of goods and lower profits as compared to total investment. A high inventory relation to demand and a position of stock or the turnover may be high due to conservative methods of valuing inventories at lower value or the policy of buying frequently in smaller lots.

Inventory Turnover Ratio = Sales / Average Stock

Average stock = Opening stock + Closing stock / 2

Table 4 : Statement of Sales to Average Stock

(Rs. in Millions)

Year	Sales (Rs.)	Average Stock (Rs.)	Ratio (in times)
2005-06	479663.93	27154.56	17.7
2006-07	566414.13	28990.19	19.5
2007-08	598482.79	32571.97	18.4
2008-09	636187.79	37706.54	16.9
2009-10	599862.77	43696.21	13.7
2010-11	658449.97	43987.78	15
2011-12	765150.94	46422.09	16.5
2012-13	830053.33	54349.14	15.3
2013-14	838902.71	57934.67	14.5
2014-15	828709.61	59230.34	14
Mean	680187.80	43204.35	16.15
AGR	7.28	11.81	-2.09
Standard Deviation (σ)	120672.36	11009.73	1.86
CV	17.74	25.48	11.55

Source: Annual Reports of ONGC for the year 2006-2015

Interpretation-

The above table showed the relationship between sales and average stock. In this table the ratio has been fluctuating during the study period, it is found that ratio has increased 17.7 times to 19.5 times between 2006 to 2007 and that after the ratio decreased 18.3, 16.8, 13.7 times respectively in year 2008 to 2010. From the year 2011-2012 the ratio increased by 15.0 to 16.5 times. After that ratio

decreased 15.2, 14.5, 14.0 times respectively in the year 2013 to 2014-2015. So that the inventory turnover ratio continuously decreasing from 2012-13 to 2014-15, which is good for company. Sale of goods has been increasing in order which is efficient management of inventory because more frequently the stocks are sold in the market during the study period.

AGE OF INVENTORY:

Age of inventory indicates duration of inventory in organization. It indicates the moving position of inventory during the year. If the age of inventory is minimum it indicates companies' activity position is satisfactory. They are able to sell their product within shorter period of time which indicates sound liquidity position of organization. On the other hand, if age of inventory is too high it indicates slow moving of stock due to lower demand of product or excessive production by company, due to stocking policy, which affects directly liquidity position of company. Inventory is one of the major items in current assets, which shows investment of working capital in stock.

Age of Inventory = Days in a year / Inventory Turnover Ratio

Table 5 : Statement of Days in a Year to Inventory Ratio

(Rs. in Millions)

Year	Days in a Year	Inventory Turnover Ratio	Ratio (in days)
2005-06	365	17.6	21
2006-07	365	19.5	19
2007-08	365	18.3	20
2008-09	365	16.8	22
2009-10	365	13.7	27
2010-11	365	14.9	24
2011-12	365	16.4	22
2012-13	365	15.2	24
2013-14	365	14.4	25
2014-15	365	13.9	26
Mean	365.00	16.07	23.00
AGR	0.00	-2.10	2.38
Standard Deviation (σ)	0.00	1.87	2.49
CV	0.00	11.64	10.83

Source: Annual Reports of ONGC for the year 2006-2015

Interpretation

Table no. 5 shows the improving trend during the beginning of the year during the study period. In the year 2006 to 2007 the ratio improved its position and decreased

to 21 days to 19 days. But after that Age of Inventory increased up to 20, 22, 27 days respectively in 2008 to 2010. Then after it has reduced by 24 to 22 days in the year 2011 – 12. After that these year have been increased to 24, 25, 26 days from 2013 to 2015. Overall, Age of Inventory is minimum it means companies actively conversion of sales which indicate the satisfactory of the company. Thus company sells their product within shorter period of time which indicates the sound liquidity position of the firm.

DEBTORS TO SALES RATIO

Debtors to sales ratio indicates the velocity of debt collection for the firm. In simple words, it indicates the number of times the debtors are turned over during a year. Generally, higher the value of debtor's turnover ratio the more efficient is the management of debtors / sales or more liquid are the debtors. Similarly, low debtors turnover ratio implies inefficient management of debtors / sales and less liquid debtors. But, a precaution is needed while interpreting a very high ratio. It may imply a firm's inability due to lack of resources to sell on credit thereby losing sales and profits. There is no rule of thumb, which may be used as a norm to interpret the ratio, as it may be different from firm to firm, depending upon the nature of business. This ratio should be compared with the ratio of other firms doing similar business and a trend may also be evaluated making a better interpretation of the ratio.

Debtors Turnover Ratio= Net Sales / Debtors

Table 6 : Statement of Net Sales to Debtors

(Rs. in Millions)

2005-06	479663.93	37042.76	12.9
2006-07	566414.13	27594.4	20.5
2007-08	598482.79	43603.66	13.7
2008-09	636187.79	40838.04	15.6
2009-10	599862.77	30586.37	19.6
2010-11	658449.97	38458.98	17.1
2011-12	765150.94	61948.16	12.4
2012-13	830053.33	68637.21	12.1
2013-14	838902.71	81656.7	10.3
2014-15	828709.61	135782.74	6.1
Mean	680187.80	56614.90	14.03
AGR	7.28	26.66	-5.27
Standard Deviation (σ)	120672.36	31174.03	4.12
CV	17.74	55.06	29.33

Sources: Annual Reports of ONGC for the year 2006-2015

Interpretation-

The above table has shown the relationship between Net Sales and Debtors. The ratio has been consistently increased or decreased during the study period; it is found

that the ratio increased 12.9, 20.5, 13.7, and 15.6, 19.6 times respectively in the year 2006 to 2010. It means higher the value of debtors turnover the more efficient is the management of debtors or more liquid are the debtors. Then after that the ratio decreased 17.1, 12.4, 12.1, and 10.3, 6.1 times, respectively in the year 2011 to 2015. The highest ratio is 20.5 in the year 2007 and the lowest ratio is 6.1 in the year 2015.

AVERAGE COLLECTION PERIOD RATIO:

The average collection period ratio represents the average number of days for which a firm has to wait before their receivables are converted into cash. It measures the quality of debtors. Generally, shorter the average collection period the better is the quality of debtors as a short collection period implies quick payment by debtors. Similarly, a higher collection period implies inefficient collection performance, which in turn adversely affects the liquidity or short term paying capacity of a firm out of its current liabilities. Moreover, longer the average collection periods, longer are the chances of bad debts. But, precaution is needed while interpreting a very short collection period because a very low collection period may imply a firm's conservative policy to sell on credit or its inability to allow credit to its customers and thereby losing sales and profit but it may be good for the company.

Average Collection Period= Days in a year / Debtors Turnover Ratio

Table 7 : Statement of Days in a Year to Debtors Turnover Ratio

(Rs. in Millions)

Year	Days in a Year	Debtors Turnover Ratio	Ratio (in days)
2005-06	365	12.9	28
2006-07	365	20.5	18
2007-08	365	13.7	27
2008-09	365	15.5	24
2009-10	365	19.6	19
2010-11	365	17.1	21
2011-12	365	12.3	30
2012-13	365	12.1	30
2013-14	365	10.2	36
2014-15	365	6.1	60
Mean	365.00	14.00	29.30
AGR	0.00	-5.27	11.43
Standard Deviation (σ)	0.00	4.12	11.52
CV	0.00	29.46	39.30

Sources: Annual Reports of ONGC for the year 2006-2015

Interpretation

In the above table, the Average Collection Period decreased from 28 to 18 days in between 2006 -07. But after that the ratio increased to 27 days in the year 2008 and onwards the ratio decreased up to 24, 19, 21 days respectively in the year 2009 to 2011. Then after that the ratio increased up to 30, 30, 36, 60 days respectively in the year 2012 to 2015. Overall Average Collection Period during the study period means beginning of the year has shorter collection period which implies quick payment by debtors then after inefficient collection performance which in turn adversely affects the liquidity paying capacity of a firm.

WORKING CAPITAL TURNOVER RATIO

Working capital of a concern is directly related to its sales. The current assets like debtors, bills receivable, cash, stock changed with the increase or decrease in sales. The working capital is taken as: **working capital = current assets - current liabilities**. This ratio measures the efficiency with which the working capital is being used by a firm. A higher ratio indicates otherwise. But, a very high working capital turnover ratio is not a good situation for any firm and hence care must be taken while interpreting the ratio.

Working Capital turnover ratio = Sales / Working capital

Working capital = Current assets - Current Liabilities

Table 8 : Statement of Sales to Working Capital
(Rs. in Millions)

Year	Sales (Rs.)	Working Capital (Rs.)	Ratios
2005-06	479663.93	265735.87	1.81
2006-07	566414.13	307063.43	1.84
2007-08	598482.79	322248.7	1.86
2008-09	636187.79	334948.58	1.9
2009-10	599862.77	342713.58	1.75
2010-11	658449.97	348962.34	1.89
2011-12	765150.94	108864.59	7.03
2012-13	830053.33	129530.13	6.41
2013-14	838902.71	107635.35	7.79
2014-15	828709.61	109897.66	7.54
Mean	680187.80	237760.02	3.98
AGR	7.28	-5.86	31.66
Standard Deviation (σ)	120672.36	103517.98	2.64
CV	17.74	43.54	66.37

Sources: Annual Reports of ONGC for the year 2006-2015

Interpretation-

Working Capital Turnover Ratio of ONGC limited improved during the study period especially after 2012 onwards. The ratio increased from 1.84 to 1.90 times from the year 2006 to 2009 but next year 2010 the ratio was reduced 1.75 times. Then after that the ratio increased positively from 1.89 to 7.54 times from the year 2011 to 2015 in these years represent highest value which indicates a good efficiency which indicates that the working capital is being utilized by the company. Overall position during the study period this shows better utilization of working capital. The company must be utilizing their working capital in the business so that it may overcome this problem.

TESTING OF HYPOTHESIS

On the study I have taken following null hypothesis which are given as below-

H₀₁: There is no significant impact of liquidity on the profitability position of ONGC Limited.

Here,

$$\bar{X}_1 = \frac{\Sigma X_1}{n} = \frac{36}{10} = 3.6$$

$$\bar{X}_2 = \frac{\Sigma X_2}{n} = \frac{27}{10} = 2.7$$

$$s = \sqrt{\frac{\Sigma d_1^2 + \Sigma d_2^2}{n_1 + n_2 - 2}} = \sqrt{\frac{18 + 5}{10 + 10 - 2}} = \sqrt{\frac{23}{18}} = \sqrt{1.3} = 1.14$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S} \sqrt{\frac{n_1 \times n_2}{n_1 + n_2}} = \frac{3.6 - 2.7}{1.14} \sqrt{\frac{10 \times 10}{10 + 10}}$$

$$= \frac{0.9}{1.14} \sqrt{\frac{100}{20}}$$

$$= 0.79\sqrt{5}$$

$$= 0.79 \times 2.24$$

$$= 1.77$$

$$D.F. = n_1 + n_2 - 2$$

$$= 10 + 10 - 2$$

$$= 20 - 2$$

$$= 18$$

$$t_{0.05} = 2.101$$

$$t > t_{0.05}$$

Interpretation of t- test:

Hence, the calculate value of t = 1.77 and critical value t = 0.05= 2.101, here calculate value is less than table value. Thus the hypothesis which was taken is accepted and there is a significant impact of liquidity on the profitability position of the ONGC Limited. However it is clear that liquidity position is directly or indirectly has been affecting the profitability position of the business.

H₀₂: There is no significant relation between current assets and current liabilities.

Here,

$$r = 0.26$$

$$t = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2}$$

$$t = \frac{0.26}{\sqrt{1-(0.26)^2}} \times \sqrt{10-2}$$

$$t = \frac{0.26}{\sqrt{1-0.7}} \times \sqrt{8}$$

$$t = \frac{0.26}{\sqrt{0.93}} \times 2.8$$

$$t = \frac{0.26}{0.96} \times 2.8$$

$$t = 0.27 \times 2.8$$

$$t = 0.76$$

$$df = n-2$$

$$= 10 - 2$$

$$= 8$$

$$t_{0.05} = 2.306$$

$$t > t_{0.05}$$

Interpretation of t - test

Hence, t= 0.76 and critical value of t=0.05=2.306, here calculate value is less than table value. Thus, hypothesis which was taken is accepted and there is significant relation in current assets and current liabilities. However the current assts are mainly maintained by current liabilities.

FINDINGS AND SUGGESTION

On the basis of analysis and interpretation, I reached to some conclusions which are as given below:

- During the study period it is found that current ratio of ONGC Limited is very satisfactory because the average current ratio is 2.018. Thus, it has been accepted standard norms of 2:1 and the company have sufficient amount in current assets in the payment of current liabilities up to 2010-11 but after the position of current ratio is not satisfactory from 2011-12 to 2014-15.
- In the study it was found that Quick ratio has been fluctuating. It shows liquidity position of the company is very good to fulfill all its current liabilities, liquid assets are quite sufficient to provide a cover to the current liabilities and also easily payable.
- Absolute liquid Acid Ratio position was satisfactory up to 2013-14 than it has a positive impact on the business but after 2013-14 its position is not satisfactory and have a negative impact on the business and there was patty expenses may be interrupted because company did not have sufficient amount of Absolute Liquid Assets of the company.
- Inventory Turnover Ratio position was satisfactory during the study period because it has been seen that inventory are rotate more than 6 in times as compared to their sales. It is also clear that inventory is not blocked in their stock because it has more time rotate and this is the good sign for the company.
- The age of Inventory has been indicating the time conversion period from raw material to finished goods. This positions a satisfactory because goods are sold within 25 days of the finished product. The shorter period of the finished product are a good sign for the development of the company and also have regular goods sales of their business.
- Debtors Turnover Ratio position of the company is also satisfactory up to 2013-14 because debtors are rotate more than 15 times as compared to sales. Hence, it is also clear that debtors are neither blocked nor have bad debts. Such types situation have a positive impact of the business, but after 2013-14 debtors turnover ratio is not satisfactory because

huge amount in debtors. Therefore, this ratio came down it has also negative impact of the business.

- Debtor collection period position was satisfactory up to 2013-14 because debtors were collected within 25 days. This indicating that company has good collection policy and there is no chance of the bad debts. But, after 2013-14 the debtors collection period was 60 days there was not worthwhile for the company because there may be chance of bad debts.
- Working capital position of the company was not satisfactory up to 2010-11, because their ratio hardly 1.85 as compared to their sales. But, after 2010-11 the working capital position has been changed and become a satisfactory position because working capital are rotate in the business is more than 7.5 times. It has also a positive impact on the business and company also able to maintain the liquidity position of the business.
- A research work does not end with its findings and analysis but it also goes one more step ahead i.e. to suggest various ways & measures to improve the overall operations of the organization.
- On the basis of the findings and observation of the study the following suggestion have been recommended:
- Company should improve their current ratio for maintaining of liquidity position of the company. Thus, current assets should be increased and current liabilities should be decreased.
- Liquid assets ratio should be strengthen in near future with the maintained of current position.
- Absolute liquid assets position should improve by creating of cash in hand, cash at bank or marketable security for the betterment of short term solvency position.
- Inventory turnover ratio at least should maintain at present level is also near future for the betterment of the business and it has also have a positive impact of the business.
- Age of Inventory ratio should be strengthening in near future also. The shorter periods of the finished product are a good sign for this company.
- Company should improve debtors' turnover ratio by reducing the amount of debtors and increasing

in sales. Thus, such type of situation will have positive impact on the business.

- Company should improve their collection period from debtors because presently, the collection period was 60 days which is not worthwhile for the company. Thus, company should make a efforts for shorter period of debtors collection during the study period and company should decrease in debtors collection period. So, there may be no chance of the bad debts.
- Company should maintain the present level of working capital in their business. In coming years for the betterment of the business and it will be also have a positive impact on the business.

CONCLUSION

The major conclusion can be stated that, after implementation of new economic policy, Oil and Natural Gas Corporation was also affected by the new waves of liberalization. 1956 onwards the company started various expansion programs. After completion of these programs company's profitability and liquidity position should have also improved and company would have been able to utilize their optimum capacity. There is a big difference between demand and supply of crude oil and natural gas in India. Due to this gap ONGC also started increasing its capacity to fulfill this gap. It was a very positive step in the interest of country as well as companies liquidity point of view. The company should give special attention to management of current assets especially inventory and debtors, because they can directly and indirectly affect liquidity position of the company. All the relevant techniques of debtors and inventory should be employed by the company to maintain over all control over liquidity position. Hence, it can be conclude that the overall liquidity management of ONGC Limited was satisfactory during the study period.

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International Portfolio Diversification Strategy: Analysis of Last Decade Strategy

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ABSTRACT

Last decade witnessed a rising integration among the global stock market. After south East Asian and US subprime crisis the nature and degree of financial integration of Asian markets with developed market like USA has changed completely. This forced the international fund managers to change their international diversification strategy. The funds managers who were having overweight on developed markets have shifted the preferences to emerging Asian markets also. During the last decade, a lot of attention was given to emerging markets. The scope of portfolio diversification depends on the degree of integration between the sampled portfolios. In case of international diversification these different global stock markets are used as asset classes in portfolios. International portfolio diversification is a function of correlation of equity markets across countries and amount of correlation one market has with another decides the scope of portfolio diversification. The markets having high correlation have less scope for portfolio diversification. The degree of integration among these global markets directs the strategy for international portfolio diversification. The aim of this paper is to analyze the changing integration behaviour of Asian markets with that of USA markets in the light of international portfolio diversification. The study used MSCI (Morgan Stanley Composite Index) global indices for the purpose of analysis. The monthly data series from April 2005 to March 2015 were used for analysis. The findings of the study suggest that as the nature of integration of different markets with USA markets has changed, so fund managers must change their international diversification strategies. The findings also suggest that international investors and fund managers cannot diversify risk of their portfolio without considering emerging markets like India. The expectation of double digit economic growth and less probability of recession attracted the international investors to diversify their portfolios to emerging markets like India.

INTRODUCTION

Last decade witnessed a rising integration among the global stock market. After south East Asian and US subprime crisis the nature and degree of financial integration of Asian markets with developed market like USA has changed completely. This forced the international fund managers to change their international diversification strategy. Diversification means reducing non-systematic risk by investing in a variety of assets. Portfolio diversification is the means by which investors minimize or eliminate their exposure to company-specific risk, minimize or reduce systematic risk and moderate the short-term effects of individual asset class performance on portfolio value. If the asset values do not move up and down in perfect synchrony, a diversified portfolio will have less risk than the weighted average risk of its constituent assets, and often less risk than the least risky of its constituent. A diversified portfolio should be diversified at two levels: between asset categories and within asset categories. So in addition to allocating investment amount among stocks, bonds, cash equivalents, and possibly other asset categories, it also need to spread out investment amount within each asset category. The key is to identify investments in segments of each asset category that may perform differently under different market conditions. Investment can be diversified by choosing different markets as asset classes.

Key words

Portfolio, Diversification,
Post-recession, integration
of capital market

The fund managers who were having overweight on developed markets have shifted the preferences to emerging Asian markets also. Especially after the Mexico crisis in 1995, South East Asian crisis in 1997 and the most recent US subprime crises, the entire focus of international investors has shifted from dominant markets USA, UK, Germany and France to emerging Asian markets like India and China. The expectation of double digit economic growth and less probability of recession attracted the international investors to diversify their portfolios to these emerging markets. In fact the term emerging markets becomes a separate asset class for the investors of developed markets. Several studies in the area of international portfolio diversification have done by the scholars across the globe. During the last decade, a lot of attention was given to emerging markets. However, studies carried on such potential benefits in emerging Asian markets in recent time are rare. This paper aims at filling this gap. The main aim of this paper is to analyze the changing integration behaviour of Asian markets (especially India) with that of USA markets and its impact on international portfolio diversification strategy. The paper proceeds along the following lines. Section two presents the review of literature, section three discusses the data and the research methodology, section four depict results and discussion and section five offers conclusions.

REVIEW OF LITERATURE

The vast amount of literature is available documenting the benefits of international portfolio diversification. But most of these significant studies primarily focused on either US markets or on European markets. They are few authentic studies which have focus on emerging Asian markets. Grubel (1968) pioneered an international diversification strategy by including South Asia in an eleven-developed country portfolio. Levy and Sarnat (1970), Lessard (1973) and Errunza (1977) studied the impact of diversification on an international scale. Solnik (1974) and Lessard (1976), among others, have presented evidence that national factors have a strong impact on security returns relative to that of any common world factor. In addition, high confidence, the end of the debt crisis and soaring return of a couple of emerging stock markets at the beginning of the 1990's attracted a lot of interest from researchers like Divecha, Drak and Stefek (1992), Diwan, Errunza and Senbet (1992) highlighted the importance of developing countries in international diversification. Bekaert, Erb, Harvey and Viskanta (1996) explained that the main differences between investment

in developed markets and emerging markets are accountable to regulatory changes, currency devaluation, failed economic plans, level of corporate governance and national financial shocks. The three main characteristics of emerging markets are high average returns, high volatility and low correlation across the emerging markets with developed markets. Bekaert and Harvey (1997) suggested that as a market becomes more and more integrated into the world capital markets, the world information becomes relatively more important. They indicated that the increasing influence of world factors on expected returns might manifest itself in increased correlation with developed market benchmarks. Furthermore, Bekaert, Erb, Harvey and Viskanta (1996) found a positive relation between returns and volatility of emerging markets. However, among segmented markets, the relation between volatility and expected returns may appear weak because the risk premium accorded to volatility could vary across country (Bekaert and Harvey-1995). International portfolio diversification relies on low correlation across markets. Correlation statistically measures the degree of relationship between two variables in terms of a number that lies between +1 and -1. When it comes to diversified portfolios, correlation represents the degree of relationship between the price movements of different assets included in the portfolio. A correlation of +1 means that prices move in same direction equally; a correlation of -1 means that prices move in opposite directions. A correlation of 0 means that the price movements of assets are totally uncorrelated; in other words, the price movement of one asset has no effect on the price movement of the other asset. In fact, low correlation enables the investor to reduce his total portfolio risk without reducing return. Solnik, Boucelle and Le Fur (1996) found that correlations were lower for dollar returns than for local currency returns. Hence, it can be argued that foreign currencies help to diversify domestic portfolio by reducing the correlation with foreign markets. Moreover, they observed that developed countries are becoming more correlated over time. Harvey (1995) pointed out that correlation between emerging markets and developed market is low. Hence, in the Markowitz framework, the addition of emerging markets to a portfolio of developed markets should significantly shift the investment opportunity set. The study concluded the cross-country correlation for the emerging market group to be low and negative. Moreover, the cross-country correlation between the emerging markets and developed ones is low (15%). However, adding emerging markets to a given portfolio gives the global minimum variance portfolio. Risk

(represented by the standard deviation) decreases by 6%. Later, Divecha, Drak and Stefek (1992) observed that the developing countries have a low correlation among themselves leading to a reduction of their global risk when considered as a group. Divecha, Drak and Stefek (1992) showed that the introduction of emerging markets in the global portfolio in a proportion of 20% reduces portfolio risk, even though the expected returns of these markets are low. Sappenfield and Speidell (1992) observed an increase in the correlation between developed countries. The impact of global events like the October 1987 crash or the invasion of Kuwait in 1990 may have contributed to this rise in correlation. This implies that greater market integration may nullify any diversification benefit in an optimal portfolio. The average correlation of developed markets with the US was 0.62 whereas it was only 0.22 with emerging markets. Hence, emerging markets provide an interesting solution in international portfolio diversification. In fact, international events have lower impact on emerging markets than developed countries. During international events or international financial crisis, the isolation of these markets helps in fulfilling their role in diversifying risks. Hence, it is optimal to include emerging markets in an international portfolio because of their low correlation with other markets. Using the same principle, Diwan and Errunza and Senbat (1994) built an efficient frontier for three distinct groups: developed markets, emerging markets and a combination of both. Their study confirmed the superiority of the global portfolio on the developed market portfolio. More recently, the oil dominated economies of the Middle Eastern gulf region have launched a number of initiatives to liberalize their financial markets (Abraham, Seyyed and Al-Elg (2001)). Reisen (2000) concluded that international diversification reduces risk better than domestic diversification because securities exhibit stronger correlations as a result of their joint exposure to country specific shocks. In fact, globalization is expected to raise the expected return for a given risk level. The diversification benefits consist therefore of reduced risk resulting in markets that are relatively uncorrelated or negatively correlated. Butler and Joaquin (2001) also agreed that the fundamental rationale for international portfolio diversification is that it expands the opportunities for gains from portfolio diversification beyond those that are available through domestic securities. Kumar (2002), examined the integration of Indian Stock Market with US, Japanese, Singapore and Hong-Kong stock markets by using Johansen's Maximum Likelihood Method. The findings suggested that Indian market was integrated with global markets. Kiran Mishra

(2002) investigated behaviour of global integration of Indian stock markets. Stock indices from Bombay Stock Exchange as well as from NASDAQ. They concluded that the movements of NASDAQ were influencing BSE. However, no co integrating vector was found between BSE and NASDAQ indices that signifies there was no long-run relationship between these two stock exchanges. Nath and Verma (2003) analyzed the integration of Indian stock markets with sampled global markets Singapore and Taiwan during the period 1994 to 2004 by employing bivariate and multivariate cointegration analysis (Johansen 1988, 1990). The findings of the study had shown that there was no long-term interrelationships and thus an equilibrium among those stock markets, though they confirmed the possibilities, in few cases, of some casual influences of one stock market's return on the return in other stock markets. Bhattacharyya & Banerjee (2004) examined the existence (or absence) of integration among stock indices of 11 developed and emerging stock markets from three continents: Asia, Europe, and America. They study found that all the 11 stock markets are cointegrated. Arouri (2004) considered that international diversification is often considered as the best instrument to improve portfolio performance. In fact, correlation between asset returns from different markets is lower than correlation within the same market. Empirical evidence on the benefits of international diversification is well documented, though much of this literature has been directed at the developed economies and the newly liberalized economies of South Asia and Latin America. Choudhry and Lin (2004) investigated the influence of US markets on Asian markets and the study found that though the US markets undoubtedly played a role in the integration of Asian markets but the influence of Japanese market played a more significant role. However, neither Japan nor the US had any single influence in the integration of Asian stock markets as markets could be cointegrated both with and without influences from these countries. Kim (2005) examined the lead-lag relationship between Asian markets and the findings of the study suggested that although there is evidence of Japanese information leadership in the Asian region but the influence of US market influence is found to be even stronger. **Khan Masood Ashraf and Ahmed (2005) in their scholastic paper** attempted to understand the inter linkages and causal relationship between the NASDAQ composite index in the US, the Nikkei in Japan with that of NSE Nifty and BSE SENSEX in India during the period January 1999 to August 2004, using daily closing data. The analysis revealed that there is no long-term relationship of the Indian equity market

with that of the US and Japanese equity markets. Choudhary (2007) recommended that cointegration model is helpful because it distinguishes between the long term and short-term linkage between the stock markets. It is also useful because it provides a good interaction between the short term and long-term models. Srivastava (2011) investigated the integration of Indian markets with US, European and Asian markets and found that Indian markets are integrated with global markets in short run not in long run. He suggested that as Indian markets are integrated in long run with global markets, it provides opportunity for international portfolio diversification for investors.

Many studies document the benefits of the diversification strategy. For example, Solnik (1995) shows that substantial advantages in risk reduction can be attained through portfolio diversification in foreign securities as well as in domestic common stocks. Eun and Resnick (1994) find potential gains from international diversification. Li, Sarkar, and Wang (2003) reveal that the benefits of international diversification are substantial for US equity investors even though short selling is not allowed. Meyer and Rose (2003) find that international diversification can be advantageous and forms a means for managing crises in developed markets. Carrieri, Errunza, and Sarkissian (2004) show that greater diversification gains can potentially be achieved if local industry investment is country specific and that investors should use both cross-country and cross-industry diversification as a way to improve portfolio performance.

DATA AND METHODOLOGY

The study uses MSCI (Morgan Stanley Composite Index) global indices for the purpose of analysis. The data of all global countries, all Asian countries, all European countries, USA, UK, France, Germany, Japan, China and India were used for analysis. The monthly data series from April 2005 to March 2015 were used for analysis. Data for the study have been collected from official website of MSCI. The MSCI Global Equity Indexes, calculated since 1969, the MSCI Global Equity Indices, are widely tracked global equity benchmarks and serve as the basis for over 650 exchanged traded funds throughout the world. The indexes provide exhaustive equity market coverage for over 75 countries in the Developed, Emerging and Frontier Markets, applying a consistent index construction and maintenance methodology. This methodology allows for meaningful global views and cross regional comparisons

across all market capitalization size, sector and style segments and combinations (Source: www.msci.com).

The descriptive statistics of sampled markets are presented in Table 1. The results clearly suggest that portfolio having only Indian stock market had highest volatility during the study period, followed by portfolio of all Asian markets. Portfolios having all European market were the least volatile. At the same time results also suggest that although Asian markets are risky but generated maximum returns in the given period. So any international investor cannot generate high returns without having Asian market (India, Hong Kong and China) in their portfolio.

Table 1: Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation	CV
All Europe	-0.0747	0.0823	0.0085	0.0320	3.74007
All Asia	-0.1501	0.1528	0.0024	0.0573	24.2789
World	-0.0599	0.0623	0.0076	0.0285	3.75833
USA	-0.0467	0.0714	0.0104	0.0248	2.38997
UK	-0.0863	0.1100	0.0075	0.0399	5.28571
France	-0.0881	0.1223	0.0069	0.0418	6.07117
Germany	-0.0738	0.1045	0.0075	0.0381	5.06089
Japan	-0.1821	0.1631	0.0006	0.0665	119.428
Singapore	-0.1022	0.1993	0.0091	0.0491	5.38437
Hongkong	-0.1324	0.2411	0.0161	0.0754	4.68781
China	-0.2015	0.2175	-0.0099	0.0987	-9.9488
India	-0.1684	0.1989	0.0004	0.0806	197.143

RESULTS AND DISCUSSION

International portfolio diversification is a function of correlation of equity markets across countries and amount of correlation one market has with another decides the scope of portfolio diversification. The markets having high correlation have less scope for portfolio diversification. Funds managers use price data to find out how the prices of two assets have moved in the past in relation to each other. Each pair of assets is assigned a number that represents the degree of correlation in their price movements. This number can be used for constructing what is called a "correlation matrix" for different assets. A correlation matrix makes the task of choosing different assets easier by presenting their correlation with each other in a tabular form. Table 2 shows the correlation matrix of monthly return of the sampled portfolios (markets). It can be observed that the correlation of Indian market with all Asian, European and US market is not significant. Even with majority of the markets correlation of Indian market is either near to zero or negative. This shows that Indian market provides scope for portfolio diversification for international investors. The results clearly depicts that international investors has to give appropriate weight to Indian stocks in the portfolio for optimum portfolio diversification.

Table 2: Correlation of Monthly Returns of Countries

	Europe	A s i a	World	U S A	U K	France	Germany	Japan	Singapore	Hongkong	China	India
Europe	1											
A s i a	.463**	1										
World	.796**	.828**	1									
U S A	.527**	0.187	.643**	1								
U K	.915**	.374**	.705**	.491**	1							
France	.780**	.369**	.620**	.411**	.675**	1						
Germany	.718**	0.221	.464**	.292*	.496**	.530**	1					
Japan	.385**	.979**	.773**	0.13	.305*	.311*	0.137	1				
Singapore	.529**	.402**	.526**	.335**	.450**	.426**	.414**	0.247	1			
Hongkong	.465**	0.197	.418**	.423**	.380**	.393**	.437**	0.02	.664**	1		
China	-0.102	-0.233	-0.172	0.064	-0.15	-0.099	0.142	-0.23	-0.052	-0.022	1	
India	-0.058	-0.028	-0.056	-0.034	-0.075	0.15	-0.036	-0.018	-0.122	-0.093	.297*	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Figure 1, below shows the risk ranking of sampled countries (by Euro money). These rankings helps investors in understanding the risk associated with a country. The expectation for return and risk premium goes up. The data clearly shows that out of the sampled countries Singapore is ranked best and the India ranked worst.

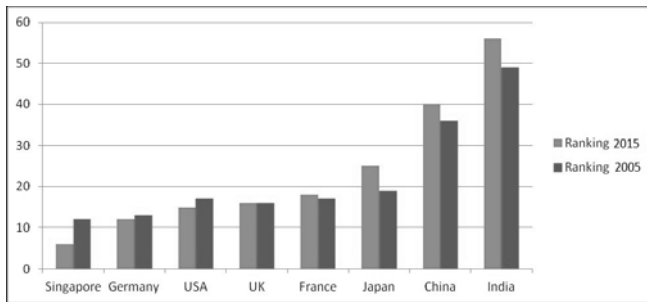


Figure 1: Country Risk Ranking

(High Ranking means Higher Risk associated with that country)

Source: Euromoney

The ranking clearly shows that from the year 2005 to 2015 Asian countries had higher risk as comparison of developed countries. Irving (2005) and Mwenda (2000) explained that the main factors that are preventing Asian stock markets from developing are low liquidity, lack of infrastructure and political instability. They argued that due to these barriers, investors consider Asian countries as risky and are unwilling to invest in their markets. The Asian countries are perceived as risk reduction investment target but are the sufferers of their own bad economic and political structure. Especially countries like India are perceived to be very risky among the available markets. Driessen and Laeven (2007) document that the potential benefits from investing abroad remain substantial and the gains from international portfolio diversification are larger for countries with higher country risk.

Table 3: The Minimum Variance Portfolios (2005-2015)

Countries in Optimum Portfolio	Label	Mean Monthly Portfolio Return	Portfolio Risk (Standard Deviation)
India (100%)	P1	0.65%	8.96%
China (100%)	P2	-0.25%	10.49%
Singapore (100%)	P3	0.39%	7.62%
Japan (100%)	P4	-0.09%	5.84%
USA (100%)	P5	0.48%	4.44%
UK (100%)	P6	0.28%	4.75%
France (100%)	P7	0.38%	6.04%
Germany (100%)	P8	0.40%	6.81%
All Countries Asia (100%)	P9	0.05%	5.71%
All Countries Europe (100%)	P10	0.40%	5.22%
USA (39%) + UK (31%) + France (1%) + Germany (29%)	P11	0.54%	5.19%
USA (13%) + UK (30%) + France (7%) + Germany (16%) + Japan (11%) + Singapore (23%)	P12	0.50%	5.14%
USA (1%) + UK (33%) + France (2%) + Germany (14%) + India (50%)	P13	0.79%	6.73%
USA (26%) + UK (31%) + France (17%) + Germany (15%) + China (11%)	P14	0.49%	4.65%
USA (9%) + UK (36%) + France (9%) + Germany (4%) + China (10%) + India (32%)	P15	0.68%	5.58%
India (99%) + China (1%)	P16	1.12%	10.22%
India(96%) + China (1%) + USA (3%)	P17	1.10%	9.91%
India (53%) + China (30%) + USA (6%) + AC Europe (11%)	P18	0.78%	6.44%
All Countries Asia (31%) + All Countries Europe (69%)	P19	0.43%	5.25%
All Countries Asia (10%) + USA (90%)	P20	0.54%	4.87%
All Countries Asia (31%) + All Countries Europe (16%) + USA(53%)	P21	0.46%	4.75%
All Global Countries	P22	0.36%	4.49%

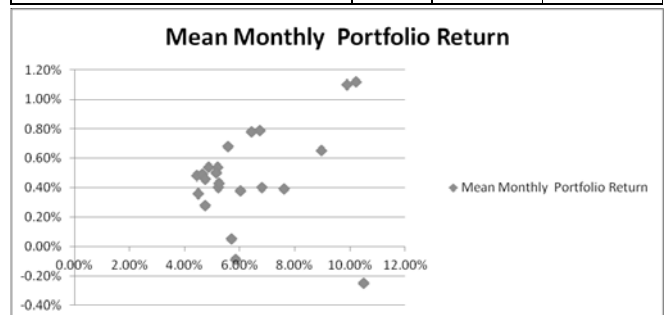


Figure 2: Efficient Frontier Under Markowitz Framework

Table 3 and figure 2 shows the risk and return of various optimum portfolios using different combinations. Classical portfolio optimization model is used to determine the fraction of a given capital invested in different assets of portfolio with its expected return (mean) being maximized subject to obtaining a pre-determined level of its risk (variance). Total 22 optimum portfolios were created by taking various combinations. Monthly risk and returns were created for various individual countries and groups. With the help of portfolio optimizer software optimum portfolios were created. The portfolio optimizer software performs basic mean-variance optimization with arbitrary bounds on portfolio weights. In the program user can choose to compute the portfolio that either - maximizes the mean-variance objective function, or improves the value of the function with a two-asset rebalancing. The results in the table clearly indicate that mean monthly returns are maximum for the portfolio having maximum weight to Indian markets. The classical mean-variance portfolio optimization model introduced by Markowitz can be used to determine the asset allocation for a given capital investment. The results depicts that although the risk profile of Indian markets is very high but at the same time any international investors looking for double digit return cannot ignore Indian markets. During last 20 years Indian markets generated maximum average return for international investors. Foreign portfolio investment in India has grown in double digit with CAGR of more than 24% since the economy was liberalized in the year 1991. In India, a particular Foreign Portfolio Investor (FPI) is allowed to invest upto 10% of the paid up capital of a company, which implies that any investment above 10% will be construed as Foreign Direct Investment (FDI). According to IMF and OECD definitions, the acquisition of at least ten percent of the ordinary shares or voting power in a public or private enterprise by non-resident investors makes it eligible to be categorized as FDI.

It is interesting to observe that all Asian markets portfolio has not generated good returns. That shows that all Asian markets are not having potential as Indian market has. Table 3 clearly suggests that portfolio P1, P16 and P17 has maximum risk with higher level of returns. Very interestingly all these portfolios are having maximum weight to Indian markets.

CONCLUSION

The study finally concludes that the international investors depending upon their required rate of return can create

various optimum portfolios under Markowitz efficient portfolio model. All these portfolios will give optimum returns. Markowitz theory attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. According to the theory, it is possible to construct an efficient frontier of optimal portfolios offering the maximum possible expected return for a given level of risk. This theory was pioneered by Harry Markowitz in his paper "Portfolio Selection," published in 1952 by the Journal of Finance. The international investors have to take into consideration Indian markets in their portfolio for optimum portfolio diversification. Although Indian markets have high volatility and risk but the results clearly suggest that without having Indian market in portfolio it's impossible to generate high returns. With a long-term trend in the decline of the exchange rate of INR- US dollar, an investment when converted back to US dollars, investors' foreign investments entail a return premium. Further, relatively low valuations of emerging markets like India and China as compared to other developed markets like the US is expected to provide long-term above average returns on the portfolio having a emerging market specially India. The study suggests that the investor must have rotation policy and when global markets are having upward movement than they can overweight Indian markets in their portfolio and in adverse condition they can over weight on European and American markets. From International portfolio diversification also Asian markets (especially India) provides good opportunities for portfolio diversification and high return.

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An Evaluation of Revenue Diversification and its Impact on Profitability and Efficiency of Private Sector Banks in India

Pushpendra Misra, Priyanka Awasthi and Shantanu Saurabh

ABSTRACT

The purpose of this paper is to analyze the revenue diversification of private sector banks in India as well as its impact on the profitability and efficiency of these banks in India during the period 2005-06 to 2015-16. Our analysis has clearly revealed that the revenue diversification of five private sector banks has been from non-fund to the fund segment since these banks (except federal) have originated since 1994, therefore with the spread of banking activities, the business of the banks have also increased which has been the prime driver of enhancing the share of fund income in net income of banks. The revenue diversification of private commercial banks in India is from non-fund to fund based business activities which has enhanced their profitability but deteriorated their efficiency.

INTRODUCTION

The thrust towards enhancement of profitability of private sector banks with the recommendation of Narasimham Committee coupled with the diffusion of Information technology enabled services in the sphere of financial sector has stimulated the banking sector to diversify their revenue generation activities from fund based operations to non fund business activities. The main drivers of non-fund income of the private sector banks were dividend income from subsidiaries, loss from treasury related operations, income from financial derivatives market, commission from distribution of fees on debit and credit cards, charges on transaction banking, fees on deposit accounts, processing fees on retail assets, income from merchant foreign exchange trade, syndication and placement fees, loan processing fees and commission on letter of credit and letter of guarantee, fee income from automatic teller machine (ATM) sharing arrangements, fee income from circulation of investment products to third party, etc. The participation of private sector banks in Indian economy triggered especially after the recommendations of Narasimham Committee. For instance, Industrial credit and investment corporation of India (ICICI) bank, Indusind bank, Axis bank, etc. started their operations in 1994-95. Initially, the coverage of these banks were low and their concentration was mainly in urban centres. Therefore, it took time for them to expand their business activities among the masses. As a consequence even until 2005-06, barring Industrial credit and investment corporation of India (ICICI) bank none could achieve a total business of Rs. One lakh crore. In order to garner bank's revenue, these banks initially therefore focused on non-fund activities and hence the share has been extremely high in total revenue of the banks from non-interest income. For instance, the share of non-fund income of Industrial credit and investment corporation of India (ICICI) bank has been over 50% while that of Indusind bank, Axis bank has been around 40% or more. Hence, with the passage of time as their business activities expanded and their deposits increased so is there advances too. As a result the share of their fund income increased. Thus, for private sector banks in India, revenue diversification is from non-fund to fund based activities. Increase in fund income also enhances profitability of banks advances to become non-performing assets. The purpose of this paper therefore is to analyze the

Key words

Portfolio, Diversification,
Post-recession, integration
of capital market

revenue diversification of private sector banks in India as well as its impact on the profitability and efficiency of these banks in India during the period 2005-06 to 2015-16.

REVIEW OF LITERATURE

There are many studies in the past that have analyzed the pattern of change in income structure of the commercial banks over time, as well as, the effects of diversification of banks activities on their profitability in India and abroad. In this context, Gallo, Aplado and Kolari (1996) scrutinized the bank holding companies of United States to know the impact of mutual fund activities on banks profitability during the period 1987 to 1994. Their findings have showed that mutual fund activities have enhanced banks profitability during the sample period of study.

Another study based on the quarterly data of the financial holding companies of United States by Stiroh and Rumble (2006) for the period 1997 to 2002 have investigated the benefits of the income diversification activities of these companies. The results of their analysis have revealed that greater focus towards non-interest income activities have imparted volatility in banks income that has more than neutralized the benefits of diversification, which in fact represent the dark side of the diversification process.

Baele, Jonghe and Vennet (2007) have examined long term performance of seventeen diversified European banks using panel data for the period 1989 to 2004. The outcome of their analysis have revealed a positive relationship between banks performance as measured by their franchise value and share of non-interest income in total income of banks.

In another study on European banks, Mercieca, Schaeck and Wolfe (2007) have assessed the performance of 755 European banks in the context of diversification of banks activities during the period 1997 to 2003. They found an inverse relationship between banks performance and non-interest income.

Elsas, Hackethal and Holzhauser (2010) have examined the mechanism by which revenue diversification affects banks value using panel data collected from nine developed countries for the period 1996 to 2008. Their investigation has revealed that diversification of banks activities has raised its profitability which in turn has enhanced its market value, irrespective of the fact, whether diversification activities has been pursued on its own (organic growth), or through mergers and acquisitions.

Jacob Amediku (2012), in their study on Uni bank, Cal bank and Zenith bank in Ghana analysed that the fee component of the non- interest income has a positive impact on the performance of the banks. Till 2008 all the three banks have shown an increasing trend in return on asset (ROA). In 2009 Uni bank and Cal bank return on asset declined while that of zenith bank increased. In 2010 return on asset of Uni bank and Cal bank increased while that of zenith bank declined over the previous years.

Jin-Lung Peng, Vivian Jeng, Jennifer L. Wang (2015) in their study on banking industry in Taiwan from 2004 to 2012 analysed that bancassurance business has tended to accrue larger risk- adjusted returns to the banks.

Vincenzo Chiorazzo, Carlo Milani, Francesca Salvini (2008) in their study on income diversification in Italian banks concluded that diversification of income increases risk adjusted returns. It also analysed that the gains resulting from increase in non-interest income of the banks starts reducing as the banks gets larger.

Andreas Dietrich, Gabrielle Wanzanried (2011) in their study on 372 commercial banks of switzerland from 1999-2009 and especially analysed the impact on profitability of banks during the global financial crisis period (2007 to 2009). Their findings have shown that profitability of banks deteriorated during the crisis years.

Anita K. Pennathur, Vijaya Subrahmanyam, Sharmila Vishwasrao (August 2012) in their study on Indian commercial banks for the period 2001-2009 investigated the impact of income diversification on profitability and insolvency of banks. They concluded that ownership does matter in the quest of non-interest income. In comparison to private sector banks and foreign banks, public sector banks earn less fee income. Fee based income of the banks reduces risk of the banks.

De, Bikram (2012) in their study of ownership effects on bank performance analyzed that ownership on banks profitability and efficiency of public and private sector banks. Their findings suggest that ownership effect does not effect banks. But the net interest margin and operating cost ratio of public sector banks have increased.

OBJECTIVES, SCOPE AND METHODOLOGY

The objective of this paper is to delineate the pattern of fund and non-fund income of private sector banks in India. Besides, its impact on bank's profitability and efficiency is also analyzed.

The scope of our study is confined to five private sector banks namely Housing development finance corporation bank (HDFC), Industrial credit and investment corporation of India (ICICI), Axis bank, Federal bank and Indusind bank and the period of study is from 2005-06 to 2015-16.

The ratio of non-interest income to net operating income and the ratio of net interest income to net operating income over time would enable one to comprehend the extent of change in bank's income diversification activities. The pattern of change in the revenue diversification has a bearing on bank's profitability and efficiency. These two parameters are analyzed with the help of the following measures:

Bank's profitability is measured by the return on assets (ROA) which is the ratio of net income to total assets of banks, while bank's efficiency is measured by the cost to income ratio (CIR) which is ratio of operating expenses to net income of banks.

HYPOTHESES

Diversification of banks income has implications on banks profitability and efficiency either directly or indirectly which have enabled us to formulate the following hypotheses:

i. With the expansion of banks business over time it is natural to expect that banks fund income would rise. We may therefore hypothesize that:

H_0 : There is hardly any impact of the percentage share of interest income on the return on average assets (ROA), i.e. $H_0: b_i = 0$, where, b_i is the regression coefficient associated with the explanatory variable return on average assets (ROA).

H_1 : There is a positive impact of the percentage share of interest income on the return on average assets (ROA), i.e. $H_1: b_i > 0$.

ii. Another important hypothesis pertains to the efficiency and share of fund income of the banks. As the share of fund income increases, the operating income of the banks also rises and which has a bearing on efficiency of banks, one may therefore hypothesize that:

H_0 : There is hardly any impact of the percentage share of interest income on the cost to income ratio, which is a parameter signifying efficiency in the banking

industry, i.e. $H_0: b_i = 0$, where, b_i is the regression coefficient associated with the explanatory variable cost to income ratio

H_1 : There is a negative impact of the percentage share of interest income on the cost to income ratio, i.e. $H_1: b_i > 0$.

The above hypotheses are analyzed with the help of graphical and panel data regression analysis.

ANALYSIS

Most of the private sector banks except federal bank considered in the analysis started their operations in 1994. As a consequence, their business initially have been low. Barring Industrial Credit and Investment Corporation of India (ICICI), for all other banks, total business upto 2005-06 was not even one lakh crore. As a consequence, for generating larger revenue they have to depend upon non-fund income. Hence their share in the non-fund income was not only high but also increased until 2007-08. (refer figure 1).

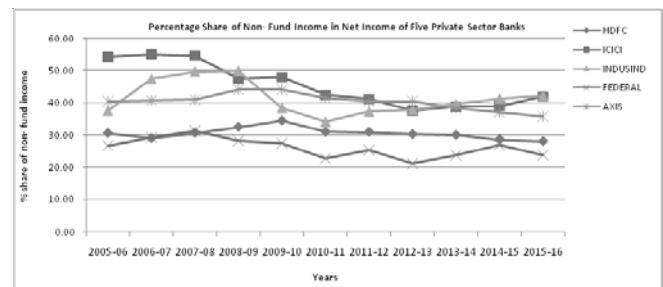


Figure 1: Percentage Share of Non-Fund Income in Net Income of Five Private Sector Banks

The most significant component in the non-fund category for these banks is the core income whose share has been in certain cases on an average over 70% of non-fund income during the period of analysis while the other components (treasury and miscellaneous income) have an insignificant role in the non-fund income. Moreover after the financial crisis in 2007-08 the share of non-fund income declined due to business activities became sluggish in different parts of the world. Further when the reserve bank of India increased the repo rate in 2010-11 and 2011-12 to curtail inflationary pressures, the returns from treasury income decreased substantially and the share of core fund income became extremely dominant. However, the economic growth that moderated due to increase in repo rate further slowed down the share of non-fund income of these banks. (refer figure 1).

In order to enhance their profitability these banks focused on expanding their business activities and as a result total business of these banks increased significantly. Thus, for the private sector banks, the rapid expansion of business activities of these banks enhanced the share of fund income after 2007-08. (refer figure II)

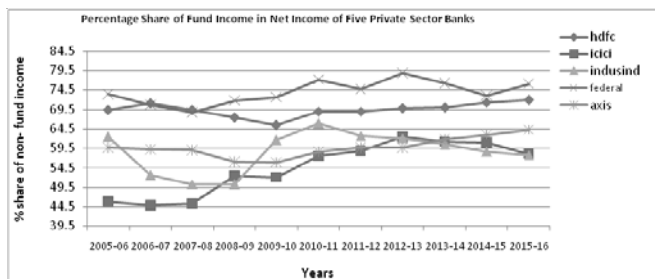


Figure 2

Thus, revenue diversification of private commercial banks in India is from non-fund to fund based business activities which is especially due to expansion in their network and business activities across different regions of the country. This has facilitated the private sector commercial banks in enhancing their return on assets over time the period of analysis.

This is substantiated by the estimated regression equation between return on assets (ROA) as dependent variable and percentage share of fund income as independent variable, based on the panel data of all five private banks for the period 2005-06 to 2015-16, the values of the intercept term and regression coefficient are given in table I below:

Table 1 : Estimates of the Intercept Term and Regression Coefficient Between Return on Assets (ROA) as Dependent Variable and Fund Income (FI) as Independent Variable of Five Private Sector Banks

Name of Bank	Intercept Terms	Regression coefficient associated with FI	R ²	F-Ratio
HDFC	-1.27	0.041138 (3.75)	20.62%	14.03
ICICI	-0.86			
INDUSIND	-1.23			
FEDERAL	-1.78			
AXIS	-0.92			

Figures in parenthesis indicate t-values

It is evident from the table that the coefficients associated with the share of fund income is positive and significant

indicating that on an average a 1% increase in share of fund income in net income of banks has enhanced return on assets (profitability) of banks by about 0.04%. This also reflects that the performance of assets especially that of the advances of these banks has been healthy and has not deteriorated much over the period of time barring the year 2015-16.

Another important parameter with which banks are concerned is its efficiency which is defined as ratio of operating expenses to net operating income. In the case of private banks, as share of non-fund income has declined over time because of the substantial expansion of the overall business of banks which has raised the fund income of banks and its share in net income, therefore over time efficiency of banks as measured by cost to income ratio would decline because of increase in net income which is especially due to the increasing fund business of the banks. Thus, in this case cost to income ratio would decline with the increase in the share of fund income rather than non-fund income. Our observation finds support by the estimated regression equation between equation between cost to income ratio (CIR) as dependent variable and percentage share of fund income as independent variable. The values of the intercept term and regression coefficient are given in table II below:

Table 2 : Estimates of the Intercept Term and Regression Coefficient Between Cost to Income Ratio (C to I) as Dependent Variable and Fund Income (FI) as Independent Variable Of Five Private Sector Banks

Name of Bank	Intercept Terms	Regression coefficient associated with FI	R ²	F-Ratio
HDFC	70.79	(-0.30604) (-1.81)	57.30%	3.28
ICICI	56.42			
INDUSIND	72.23			
FEDERAL	64.89			
AXIS	53.99			

Figures in parenthesis indicate t-values

It is evident from the table II that value of the regression coefficients associated with the fund income is negative but not significant indicating that as share of non-fund income has increased, cost to income ratio has marginally declined i.e. efficiency of banks has marginally improved over time. This is also reflected by the declining pattern of change of cost to income ratio as shown in the figure III below:

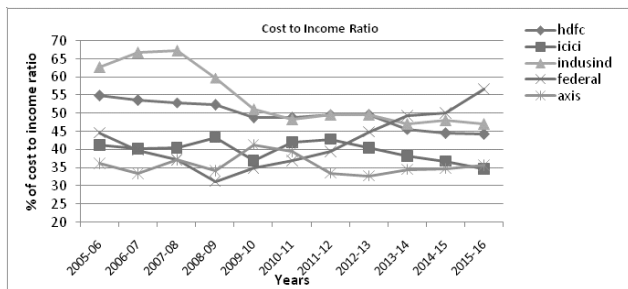


Figure 3

Thus, the analysis of five private sector banks have revealed the revenue diversification has been from non-fund to the fund segment since these banks (except federal) have originated since 1994, therefore with the spread of banking activities, the business of the banks have also increased which has been the prime driver of enhancing the share of fund income in net income of banks.

CONCLUSIONS AND POLICY IMPLICATIONS

The analysis of five private sector banks have revealed the revenue diversification has been from non-fund to the fund segment since these banks (except federal) have originated since 1994, therefore with the spread of banking activities, the business of the banks have also increased which has been the prime driver of enhancing the share of fund income in net income of banks. However, with increasing revenue from the fund income, banks must cautiously tread towards granting larger advances to the sensitive sectors like housing, telecommunication, etc. because it can enhance substantially the non-performing assets of banks if there is economic crisis in the country or at the global level. Further, these banks must also develop a good recovery mechanism so that any losses in revenue on the fund side could be offset by the non-fund income in the form of recovery from written-off accounts. This is all the more important since the main source of the non-fund income of the private sector banks is just the core income which too has the tendency to dip in times of recession and if there are defaults in loan repayment, then the only way to compensate the loss is the recovery mechanism. Moreover, these banks must restrain themselves from giving unsecured lending to commercial sector else it would be too difficult to manage the non-performing assets. The manner in which the non-performing assets of Industrial Credit and Investment Corporation of India (ICICI) increased from 3.93% to 6.13% in terminal year of analysis is an eye opening for all private commercial banks in India.

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Impact of Reactions, Learning, Behaviour and Results on the Overall Effectiveness of Training Program by Advanced Training Institute, Hyderabad - A Comparative Study between Public Sector Undertakings and Government Organisations

D. Srinivasa Rao and P. Vijaya Kumar

ABSTRACT

Evaluation helps determine the results of the training and development programme. In practice, however, organizations either overlook or lack facilities for evaluation. The main objective of evaluating the training programmes is to determine if they have accomplished specific training objectives and corrected performance deficiencies. A second reason for evaluation is to ensure that any changes in trainee capabilities are due to the training programme itself and not due to any other conditions. The main objective of the study are to measure the level of effectiveness of training through the reaction, learning, behaviour and results as opined by the respondents of government sector and public sector industries and to find out the relation between the reaction, learning, behaviour, results and the effectiveness of training of the respondents of government sector and public sector industries. As a result of the analysis, that the respondents are much comfortable with the time and environment provided by the ATI, Hyderabad. Whereas they feel that a lot of improvement is needed in the area of effectiveness and interaction of the instructor, quality of training course, course objectives, communication and practical sessions. So both the respondents are uniquely saying that a lot of improvement is needed to deliver the training more effectively.

INTRODUCTION

Evaluation helps determine the results of the training and development programme. In practice, however, organizations either overlook or lack facilities for evaluation. The main objective of evaluating the training programmes is to determine if they have accomplished specific training objectives and corrected performance deficiencies. A second reason for evaluation is to ensure that any changes in trainee capabilities are due to the training programme itself and not due to any other conditions. Evaluation of training is the most essential aspect of any training programme. Generally all good training programmes start with identification of training needs and ends with evaluation of training (Gopal, 2009). Training evaluation ensures that whether candidates are able to implement their learning in their respective work place or to the regular routines (Nagar, 2009).

REVIEW OF LITERATURE

Hitesh Chelawat (2015) has done their research in the topic “A comparative study of effectiveness of training and development in service sector industries” revealed that employee training is becoming a necessity for every organization now-a-days. Employees are entrusted different roles and responsibilities in the organisation. Training enables them to carry out these roles and responsibilities efficiently. Service Sector is playing a vital role in the Indian economy contributing to more than 57% of GDP in year 2012-13.

Key words

Reactions, Learning,
Behaviour, Results,
Effectiveness of Training
Program

It is one of the fastest growing sectors with an annual growth rate of above 9% since 2001. The study has been undertaken to gain insights into the various aspects of training & development in five select service sector industries, viz. Banking, Hospital, Hotel, Insurance and IT industry in the state of Rajasthan. A questionnaire survey was undertaken for the study and ANOVA was applied to test the hypothesis. The study concludes that there is a significant difference on the training aspects of need assessment, process, quality & effectiveness and scope for improvement in the different service sector industries.

Tarun Singh (2015) in the study entitled "Efficacy of Training and development programs of Employees Productivity at Bharat Heavy Electricals Ltd.", enlighten that training is equipping the employees with required skill to perform their job. Development is the growth of employees at every level of management by planned and organized process. The main aim of training and development is the best possible utilization of employees' capabilities. In the present study an attempt has been made to study the impact of training and development programs on employees' efficiency of the Bharat Heavy Electricals Ltd.(BHEL). The study showed the impact of training and development program on employees' efficiency, which appended to be good in BHEL. The average mean score and percentage score of the overall 20 items has been computed at 3.62 (65.5%).

Norsiah Binti Mat (2014) in the study entitled "Evaluation of Effectiveness of Training and Development: The Kirkpatrick Model", said that evaluation of training effectiveness is the measurement of improvement in the employee's knowledge, skill and behavioral pattern within the organization as a result of training program. This measurement help to match the cost incurred in the design and implementation of training with the associated benefits. Thus, it indicates whether the program has been able to deliver its intended goals and objectives. The purpose of this paper is to review the model of training effectiveness for the adoption by the human resources development executives in their planning, designing and implementing training program.

STATEMENT OF PROBLEM

Most of research on training effectiveness, has focused on Kirkpatrick's level one (reaction) and level two (learning)

because of the difficulty of obtaining relevant information on further levels while much training ignores behaviour (level three) and results (level four). Consequently, Thai HRD professionals continue to make decisions based on reaction and learning levels only (Yamnil and McLean, 2005).

Assessment of training effectiveness is complete only when it is evaluated at all four levels i.e. reaction, learning, behaviour and results. Thus, this study tries to evaluate the effectiveness of the training by using model and investigate the influence of moderator variables on training effectiveness. Without considering the role of trainees' individual and work environment characteristics as influencing training effectiveness, it is not possible to fully understand why training is or is not effective. Previous models don't explicitly incorporate these factors.

RESEARCH QUESTIONS

- 1) Is there any difference of opinion among the employees belonging to the public sector undertakings and government on the training through the reaction, learning, behaviour and results?
- 2) Is there any relationship among the variables of the effectiveness of training of the respondents of public sector industries and government sector?
- 3) Is there any relation between the reaction, learning, behaviour, results and the effectiveness of training of the respondents of public sector industries and government sector?

OBJECTIVES OF THE STUDY

1. To measure the level of effectiveness of training through the reaction, learning, behaviour and results as opined by the respondents of public sector industries and government sector.
2. To evaluate the difference of opinion between the reaction, learning, behaviour, results and the effectiveness of training based on the nature of the organisation.
3. To investigate the relationship between the variables of the effectiveness of training of the respondents of government sector and public sector industries.

SAMPLE OF THE STUDY

The training programmes are conducted and population records are extracted from the Advanced Training Institute, Hyderabad. The total numbers of employees who have attended the training are 2645 employees from the public sector industries and 1347 employees from the government sector industries. The use of a sample about 10% size of parent population is recommended for any research. According to Roscoe (1975), it seems to use 10% as a “rule of thumb” acceptable level. Then another author Alreck & Settle (1995) state that if the parent population is 1400 and then sample size should be about 140. Hence the researcher has identified 10% of the sample size is selected from each companies from public sector and government sector industries. So 267 samples from public sector industries and 138 from government sector industries have been taken for the study. Totally 300 questionnaires were distributed among the public sector industries, the researcher found 267 filled questionnaires are in order and 23 questionnaires were found to be biased and incomplete. Similarly 150 questionnaires were distributed among the government sector industries, the researcher found 138 filled questionnaires are in order and 12 questionnaires were found to be biased and incomplete.

In this research, the researcher has adopted simple random sampling method to collect the primary data. In this study the researcher, selected the respondents, who attended the training program from the public sector and government sector industries conducted by Advanced Training Institute, Hyderabad.

Table 1 : Mean and Standard Deviation of Overall Reactions

Measuring Questions	Public Sector Undertaking		Government Organisation	
	Mean	Sd	Mean	Sd
Training Management Process	3.07	0.264	2.93	0.26
Materials and Course Structure	1.15	0.361	1.29	0.455
Satisfaction towards Trainer	1.36	0.48	1.36	0.48
Mean Score	1.85	0.358	1.79	0.409

Public Sector Undertaking

The respondents clearly state that they are highly satisfied with the training management process with a mean value of 3.07 and with a standard deviation of 0.264.

But to controversy the respondents clearly state that they are dissatisfied with the satisfaction towards trainer with a mean value of 1.36 and with a standard deviation of 0.48. Similarly the respondents clearly state that are dissatisfied with the materials and course structure with a mean value of 1.15 and with a standard deviation of 0.361.

Government Organisation

The respondents clearly state that they are just satisfied with the training management process with a mean value of 2.93 and with a standard deviation of 0.26.

But to controversy the respondents clearly state that they are dissatisfied with the satisfaction towards trainer with a mean value of 1.36 and with a standard deviation of 0.48. Similarly the respondents clearly state that they are dissatisfied with the materials and course structure with a mean value of 1.29 and with a standard deviation of 0.455.

Table 2 : Mean and Standard Deviation of Overall Learning

Measuring Questions	Public Sector Undertaking		Government Organisation	
	Mean	Sd	Mean	Sd
Knowledge	3.10	0.579	2.66	0.598
Skills	3.22	0.749	2.37	0.605
Mean Score	3.07	0.551	2.44	0.616

Public Sector Undertaking

The respondents clearly state that they highly agree with the skills with a mean value of 3.22 and with a standard deviation of 0.749. Similarly the respondents clearly state that they highly agree with the knowledge with a mean value of 3.10 and with a standard deviation of 0.579.

Government Organisation

The respondents to a degree low clearly state that they just agree with the knowledge with a mean value of 2.66 and with a standard deviation of 0.598. Similarly the respondents to a degree low clearly state that they just agree with the skills with a mean value of 2.37 and with a standard deviation of 0.605.

Table 3 - Mean and Standard Deviation of Overall Behaviour

Measuring Questions	Public Sector Undertaking		Government Organisation	
	Mean	Sd	Mean	Sd
Application (Capability Improvement)	3.27	0.528	2.93	0.594
Implementation	3.73	0.445	2.8	0.66
Mean Score	3.73	0.443	2.87	0.637

Public Sector Undertaking

The respondents clearly state that they highly agree with the implementation with a mean value of 3.73 and with a standard deviation of 0.445. Similarly the respondents clearly state that they highly agree with the application (capability improvement) with a mean value of 3.27 and with a standard deviation of 0.528.

Government Organisation

The respondents clearly state that they highly agree with the application (capability improvement) with a mean value of 2.93 and with a standard deviation of 0.594. Similarly the respondents to a degree low clearly state that they just agree with the implementation with a mean value of 2.8 and with a standard deviation of 0.66.

Table 4 - Mean and Standard Deviation of Overall Results

Measuring Questions	Public Sector Undertaking		Government Organisation	
	Mean	Sd	Mean	Sd
Individual Results	1.04	0.19	1.21	0.409
Organizational Results	1.04	0.19	1.43	0.497
Mean Score	1.15	0.358	1.28	0.452

Public Sector Undertaking

The respondents clearly state that they disagree with the individual results with a mean value of 1.04 and with a standard deviation of 0.19. Similarly the respondents clearly state that they disagree with the organizational results with a mean value of 1.04 and with a standard deviation of 0.19.

Government Organisation

The respondents clearly state that they disagree with the organizational results with a mean value of 1.43 and with a standard deviation of 0.497. Similarly the respondents clearly state that they disagree with the individual results with a mean value of 1.21 and with a standard deviation of 0.409.

Table 5 - Mean and Standard Deviation of Overall Effectiveness of Training Program

Measuring Questions	Public Sector Undertaking		Government Organisation	
	Mean	Sd	Mean	Sd
Instructor's Effectiveness	1.47	.500	1.72	.452
Quality of Training Course	1.15	.358	1.51	.502
Course Objectives	1.35	.477	1.72	.452
Time Allotted for Training	3.81	.394	3.78	.563
Communication	1.19	.394	1.29	.455
Interaction	1.27	.443	1.50	.502
Practical Session	1.53	.500	1.86	.346
Training Environment	3.15	.361	3.14	.515
Mean Score	1.84	0.368	1.93	0.248

Public Sector Undertaking

The respondents clearly state that they highly agree with the time allotted for training with a mean value of 3.81 and with a standard deviation of 0.394. Similarly the respondents clearly state that they highly agree with the training environment with a mean value of 3.15 and with a standard deviation of 0.361.

Whereas the respondents clearly state that they disagree with the practical session with a mean value of 1.53 and with a standard deviation of 0.500. Similarly the respondents clearly state that they disagree with the instructor's effectiveness with a mean value of 1.47 and with a standard deviation of 0.500.

Similarly the respondents clearly state that they disagree with the course objectives with a mean value of 1.35 and with a standard deviation of 0.477. Similarly the respondents clearly state that they disagree with the interaction with a mean value of 1.27 and with a standard deviation of 0.443.

Similarly the respondents clearly state that they disagree with the communication with a mean value of 1.19 and with a standard deviation of 0.394. Similarly the respondents clearly state that they disagree with the quality of training course with a mean value of 1.15 and with a standard deviation of 0.358.

Government Organisation

The respondents clearly state that they highly agree with the time allotted for training with a mean value of 3.78 and with a standard deviation of 0.563. Similarly the respondents clearly state that they highly agree with the

training environment with a mean value of 3.14 and with a standard deviation of 0.515.

Whereas the respondents clearly state that they disagree with the practical session with a mean value of 1.86 and with a standard deviation of 0.346. Similarly the respondents clearly state that they disagree with the instructor’s effectiveness with a mean value of 1.72 and with a standard deviation of 0.452.

Similarly the respondents clearly state that they disagree with the course objectives with a mean value of 1.72 and with a standard deviation of 0.452. Similarly the respondents clearly state that they disagree with the quality of training course with a mean value of 1.51 and with a standard deviation of 0.502.

Similarly the respondents clearly state that they disagree with the interaction with a mean value of 1.50 and with a standard deviation of 0.502. Similarly the respondents clearly state that they disagree with the communication with a mean value of 1.29 and with a standard deviation of 0.455.

The reaction shows that there is no significant difference between the opinion of respondents belonging to the nature of organisation like public sector undertaking and government organisation. Since its calculated significance is greater than the assumed significance ($P > 0.05$). Hence the null hypothesis is accepted.

The learning, behavior, results and effectiveness of training program shows that there is significant difference between the opinion of respondents belonging to the nature of organisation like public sector undertaking and government organisation. Since its calculated significance is less than the assumed significance ($P < 0.05$). Hence the null hypothesis is rejected.

The reason is that the variation in the sample size of the public sector undertaking and government organization respondents would have shown the difference on the opinion in the mentioned variables as they carry the near mean value that the respondents agree with the learning (PSU = 3.07 and GO = 2.44). The respondents agree with the behaviour (PSU = 3.73 and GO = 2.87). The respondents disagree with the results (PSU = 1.15 and GO = 1.28) and the respondents disagree with the effectiveness of training program (PSU = 1.84 and GO = 1.93).

Positive Correlation: The variable learning has positive correlation with variable results (.330). Similarly the variable behaviour has positive correlation with variable results (.253).

Negative Correlation: The variable reaction has negative correlation with variables learning (-.330), behaviour (-.253), results (-.706). Similarly the variable behaviour has negative correlation with variable effectiveness of training programme (-.264).

Table 6 : Difference of Opinion between the Reactions, Learning, Behaviour, results and Effectiveness of Training program based on the Nature of Organisation

H_0 : There is no significant difference between reaction, learning, behavior, results and effectiveness of training program based on the nature of organisation.

Variables	Organisation Nature	N	Mean	Sd	Z	df	Sig.
Reactions	PSU	267	1.85	.358	1.531	403	.126
	GO	138	1.79	.409	1.467	246.832	.144
Learning	PSU	267	3.07	.551	10.390	403	.000*
	GO	138	2.44	.616	10.027	251.512	.000*
Behaviour	PSU	267	3.73	.443	15.946	403	.000*
	GO	138	2.87	.637	14.256	207.192	.000*
Results	PSU	267	1.15	.358	-3.230	403	.001*
	GO	138	1.28	.452	-3.001	227.721	.003*
Effectiveness of Training Program	PSU	267	1.84	.368	-2.751	403	.006*
	GO	138	1.93	.248	-3.104	375.966	.002*
<i>PSU - Public Sector Undertaking</i>							
<i>GO - Government Organisation</i>							
* significant at 0.05 %							

Table 7 : Correlation between the Variables of Measuring the Effectiveness of Training for Public Sector Undertaking

H_0 : There is no significant correlation between the variables of measuring the effectiveness of training for public sector undertaking.

Variables	Reactions	Learning	Behaviour	Results	Effectiveness of Training Program
Reactions	1				
Learning	-.330**	1			
Behaviour	-.253**	.074	1		
Results	-.706**	.330**	.253**	1	
Effectiveness of Training Program	.102	.072	-.264**	-.102	1
** significant at 0.01 %					
* significant at 0.05 %					

Table 8 : Correlation between the Variables of Measuring the Effectiveness of Training for Government Organisation

H_0 : There is no significant correlation between the variables of measuring the effectiveness of training for government organisation.

Variables	Reactions	Learning	Behaviour	Results	Effectiveness of Training Program
Reactions	1				
Learning	-.208*	1			
Behaviour	.146	.687**	1		
Results	-.032	-.452**	-.606**	1	
Effectiveness of Training Program	-.136	.620**	.362**	.166	1
*. Correlation is significant at the 0.05 level (2-tailed).					
**. Correlation is significant at the 0.01 level (2-tailed).					

Public Sector Undertaking

No Correlation: The variable reaction has no correlation with variables effectiveness of training programme. Similarly the variable learning has no correlation with variable behaviour and effectiveness of training programme. Similarly the variable results has no correlation with variable effectiveness of training programme.

Government Organisations

Positive Correlation: The variable learning has positive correlation with variable behaviour (.687) and effectiveness of training programme (.620). Similarly the variable behaviour has positive correlation with variable effectiveness of training programme (.362).

Negative Correlation: The variable reaction has negative correlation with variables learning (-.208). Similarly the variable learning has negative correlation with variable results (-.452). Similarly the variable behaviour has negative correlation with variable results (-.606).

No Correlation: The variable reaction has no correlation with variables behaviour, results and effectiveness of training programme. Similarly the variable results has no correlation with variable effectiveness of training programme.

CONCLUSION

The results of both the industries public sector undertakings and government organisations are analysed. The results in a nut shell that the respondents are much comfortable with the time and environment provided by the Advanced Training Institute, Hyderabad. Whereas they feel that a lot of improvement is needed in the area of effectiveness and interaction of the instructor, quality of training course, course objectives, communication and practical session. So both the respondents are uniquely saying that a lot of improvement is needed to impart the training more effectively.

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Comparative Performance Analysis of the ICICI Bank and the HDFC Bank

Laxmappa Kashappa and Basavaraj C S

ABSTRACT

Private sector banks are becoming increasingly dominant in size, customer base, quality of service, and customer choice and preference. The present study compares the performance of two private sector banks namely, the HDFC bank and the ICICI bank. A critical analysis of the results reveals that the rate of growth in the net profit, during the study period, is lower in case of the ICICI bank as against the growth rate achieved by the HDFC bank. As regards to the number of branches the HDFC bank is doing well, but in case of growth in the number of ATMs the ICICI bank is doing better. Based on aggregate results of the select parameters considered in the study it is concluded that the HDFC bank's financial performance is better than that of the ICICI bank during the period under study.

INTRODUCTION

Banking services in India are rendered by the enterprises belonging to both private and public sectors. The historical evidence reveals the dominance of private sector banks in the early 20th century and dominance of the public sector banks in the later part of the 20th century. Thanks to privatisation and globalisation policies of the Indian government we have been witnessing repeat of the history in the 21st century as the private sector banks are becoming dominant by size, by customer base, by quality of service and by customer choice and preference. Recently, due to merger of SBI and its subsidiaries there is a strategic restructure in public sector banking. Size of a bank provides several leverages leading to specific advantages to stakeholders. Apart from that larger banks can invest more in automation, invest more in research and withstand adverse business environment at times. Banks are in competition with in the sector and across the sectors, whether they want it or not. This competition has been the subject matter of many research studies due to its relevance, in the present economic scenario, to all classes of stakeholders. Study of comparative analysis of performance of banks reveals which bank stands where.

The HDFC bank and the ICICI bank are the two premiere banking companies of private sector. The researchers want to analyse the performance level of these two banks, by considering select financial and non-financial parameters.

REVIEW OF LITERATURE

A number of research studies dealing with the comparative performance analysis of banks have revealed the findings which are, at times, contradicting and contrasting. The important findings are that new banks are more efficient than old ones and public sector banks are not as profitable as other sector banks are (**Cheenu Goel, Chitwan Bhutani Rekhil 2013**). IndusInd Bank and Yes Bank generated profit at higher rate than ICICI Bank, Axis Bank and HDFC Bank (**Pawan et.al 2016**). Public sector banks are lagging behind other banks in various financial parameters (**Rajamohan and D Durairaj**

Key words

Financial Performance, Branches, ATMs, Net Profit, Capital adequacy, Return on Average Assets, Cost to Income, Profit Per Employee, etc.

2015). Selected large cap and mid cap of public and private sector banks are positively associated with capital adequacy ratio (S. Devarajan 2015). Public sector banks are doing well compared to private sector banks in the area of profitability, debt-equity and earning per share. However price earning ratio of private sector banks is higher than the public sector banks (Nilesh P. Movalia and Pintu A. Vekariya 2014). Profit generation with respect to its human resource is highest in foreign banks followed by Indian private banks (Chopra Shruti and Toor M.S 2014). Growth rate of ICICI bank is higher than SBI bank (G Nagarajan, A Asif Ali, N. Sathyanarayana 2013). Growth rate of HDFC bank is higher as compared to all other private sector banks (Sangeetha M. 2013). Financial soundness of SBI bank is better than ICICI bank but in the context of deposits and expenditure ICICI bank has better managing efficiency than SBI bank (Anurag. B. Singh Ms. Priyanka Tandon 2012). Large banks have less control over the operations and therefore, small size banks are efficient (N. Seshadri, et.al 2013). Ratio of gross NPA to gross advances for public sector, private sector and foreign banks does not have significant difference (Mayur Rao and Ankita Patel 2015). Frequency of adoption of mobile banking is more in nationalized banks than in the ICICI bank (Renu Bagoria 2014). People prefer SBI bank for their deposits than the Punjab National Bank and the Bank of Baroda (Ms. Rajni 2015). Cut throat competition is given to the public sector banks by the private sector banks (Garima Choudhary 2014). The financial performance of the HDFC Bank is better than the Punjab National Bank (Bhanwar Singh and Pawan 2016). ICICI bank has performed better than the SBI bank and its comparative performance trend is also improving (Pushpendra Misra and Ajay Singh Yadav 2015). The financial performance of the HDFC bank is better than that of the SBI bank during the study period (Laxmappa Kashappa and Basavaraj C S 2016). These studies give an idea about the performance of sectors of banking and also about the performance of certain individual banks.

The present study has been undertaken to bridge the research gap pertaining to the comparative financial performance analysis of two premiere private sector banks namely, the ICICI bank and the HDFC bank, in recent years.

OBJECTIVES OF THE STUDY

Main objectives of the study are to:

- Examine the branch expansion and profit trends of the ICICI bank and the HDFC bank.
- Compare the financial performance of the ICICI bank and the HDFC bank.
- Analyse key ratios of performance vis-a-vis the ICICI bank and the HDFC bank.

HYPOTHESES OF THE STUDY

The following null hypotheses have been set for the study.

H0-1 There is no significant difference between Return on Average Assets Ratio of the ICICI bank and the HDFC bank.

H0-2 There is no significant difference between Capital Adequacy Ratio of the ICICI bank and the HDFC bank.

H0-3 There is no significant difference between Cost to Income Ratio of the ICICI bank and the HDFC bank.

H0-4 There is no significant difference between Net NPA Ratio of the ICICI bank and the HDFC bank.

H0-5 There is no significant difference between Profit per Employee Ratio of the ICICI bank and the HDFC bank.

RESEARCH METHODOLOGY

The study makes an attempt to examine and compare the financial performance of two prominent Indian private sector banks namely, the ICICI bank and the HDFC Bank. The study is exclusively based on secondary data obtained from annual reports of the banks under study, research articles published in various journals and other relevant publications, and websites. The study covers a period of 5 financial years i.e. from 2011-12 to 2015-16. The number of branches and ATMs, and their growth has been analysed to understand the banks' access to customers. To analyse the trends in net profit of the banks the amount of net profit (in absolute terms) and its growth during the study period has been studied. The financial performance of the banks has been examined on the basis of Return on Average Assets, Capital Adequacy, Net NPA, Profit Per Employee and Cost to Income parameters. And to test the set hypotheses Mann-Whitney U-test has been used.

TOOLS USED IN THE STUDY

In analysing the research data the following ratio techniques and the statistical tools have been used.

Return on Average Assets Ratio

Return on Average Assets Ratio is an indicator used to assess the profitability of a bank's assets. It is calculated by taking net income which is divided by average total assets. The ratio helps to measure how efficiently the bank is utilizing its assets. Higher the Return on Average Assets of a bank more will be the profitability of bank.

Capital Adequacy Ratio

Capital adequacy ratio measures the amount of a bank's core capital expressed as a percentage of its assets. This ratio is used to study the depositors' safety, financial stability and efficiency.

Net NPA Ratio

No recovery or short fall in recovery of money lent leads to NPAs and consequently results in decline of income to the lender. Net NPA to Net Advances Ratio indicates the level of NPAs.

Cost to Income Ratio

Cost to Income ratio measures the income generated per rupee cost. Low level of cost to income ratio indicates better performance of a bank and there by better management of the bank.

Profit Per Employee

Profit made by bank per employee basis shows the operating performance of the bank. Higher the ratio better the operating performance of the bank.

Mann-Whitney U-test

The Mann-Whitney U-test (www.wikipedia) (also called the Mann-Whitney-Wilcoxon (MWW), Wilcoxon rank-sum test, or Wilcoxon-Mann-Whitney test) is a nonparametric test of the null hypothesis that two samples come from the same population against the alternative hypothesis, especially that a particular population tends to have larger values than the other. Unlike the t-test it does not require the assumption of normal distribution. It is nearly as efficient as the t-test on normal distribution.

THE STUDY

Table 1 : Growth in Branches of the ICICI Bank and the HDFC Bank

Financial Year	ICICI Bank			HDFC Bank		
	Total Branches (Nos)	AGR (%)	Trend value	Total Branches (Nos)	AGR (%)	Trend value
2010-11	2529			1986		
2011-12	2752	08.81	14.55	2544	28.09	24.68
2012-13	3100	12.64	13.30	3062	20.36	21.35
2013-14	3753	21.06	12.05	3403	11.13	18.02
2014-15	4050	07.91	10.80	4014	17.95	14.69
2015-16	4450	09.87	09.55	4520	12.60	11.36
CAGR	9.88			14.69		

Source: Annual reports of ICICI bank and HDFC bank for FY2010 -11 to 2015-16

Table-1 presents the trend in the number of branches of the ICICI bank and the HDFC bank. The total number of branches of both the banks are continuously increasing year after year, during the study period. Based on the year-wise number of branches and the AGR the trend values are presented, which show a moderate rise in the number of branches of the ICICI bank and a higher rise in case of the HDFC bank.

Chart 1 : Branches and its AGR (%) and Trend values of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

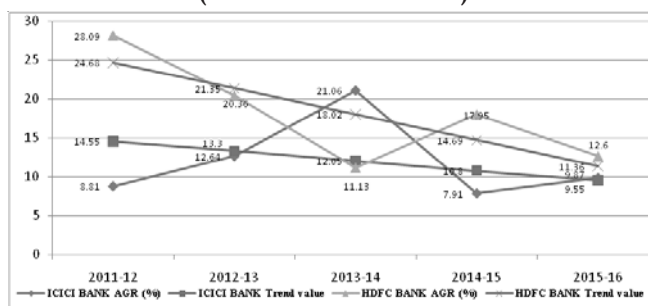


Table 2 : Growth in ATMs of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

Financial Year	ICICI Bank			HDFC Bank		
	ATMs (Nos)	AGR (%)	Trend value's	ATMs (Nos)	AGR (%)	Trend value's
2010-11	6104			5471		
2011-12	9006	47.54	38.51	8913	62.91	46.50
2012-13	10481	16.37	30.47	10743	20.53	32.72
2013-14	11315	07.95	22.43	11256	04.77	18.94
2014-15	12451	10.03	14.39	11766	04.53	5.16
2015-16	13766	10.56	06.35	12000	01.98	-8.64
CAGR	14.52			13.99		

Source: Annual reports of ICICI bank and HDFC bank for FY2010 -11 to 2015-16

Table-2 shows AGR and CAGR of ATMs of the ICICI bank and the HDFC bank. The total number of ATMs of both the banks have been increasing over the period. However, the rate of growth in the first two years is far higher than the last three years for both the banks. Overall CAGR of ATMs for the study period is higher in case of ICICI bank by 0.53%.

Chart 2 : ATMs and its AGR (%) and Trend values of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

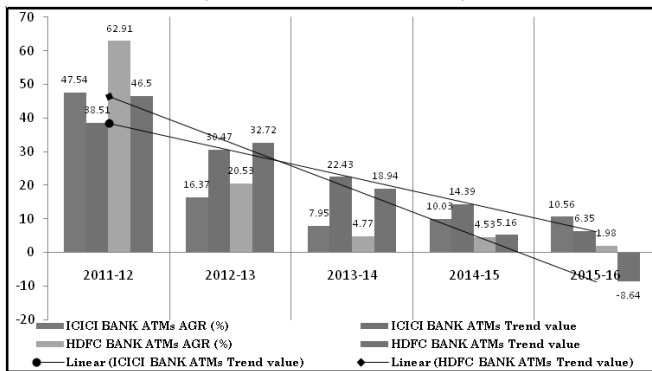


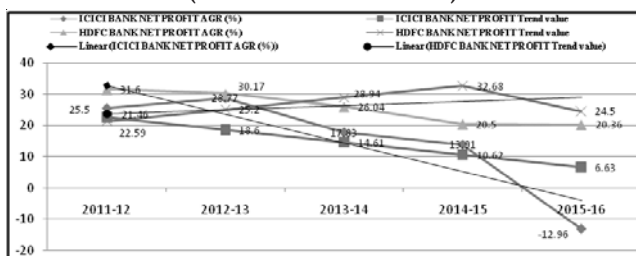
Table 3 : Net profit and its Trend values of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

Financial Year	ICICI Bank			HDFC Bank		
	Net Profit (Rs.in crores)	AGR (%)	Trend values	Net Profit (Rs.in crores)	AGR (%)	Trend values
2010-11	5151			3926		
2011-12	6465	25.50	22.59	5167	31.60	21.46
2012-13	8325	28.77	18.60	6726	30.17	25.20
2013-14	9810	17.83	14.61	8478	26.04	28.94
2014-15	11175	13.91	10.62	10216	20.50	32.68
2015-16	9726	-12.96	6.63	12296	20.36	24.50
CAGR	11.18			20.96		

Source: Annual reports of ICICI bank and HDFC bank for FY2010 -11 to 2015-16

Table-3 shows the trend in net profit of the ICICI bank and the HDFC bank. CAGR of net profit of the HDFC bank is higher than the ICICI bank. The CAGR of net profit of HDFC bank is nearly double of the CAGR of net profit of the ICICI bank.

Chart 3 : Net profit and its Trend values of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)



TESTING OF HYPOTHESES

The null hypotheses set for the study have been tested and analysed here under:

H0-1 There is no significant difference between Return on Average Assets of the ICICI bank and the HDFC bank.

Table 4 : Mann-Whitney U-Test for Return on Average Assets (%) of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

Financial Year	ICICI Bank		HDFC Bank	
	ROAA Value	Rank	ROAA Value	Rank
2011-12	1.50	2	1.77	5
2012-13	1.66	3	1.90	7
2013-14	1.76	4	2.00	9
2014-15	1.86	6	2.02	10
2015-16	1.49	1	1.92	8
Sum Of Rank Order		16		39
No. Of Data		5		5
U-Value	1**			
Z-VALUE	-2.405			

Source: Annual reports of ICICI bank and HDFC bank for FY2011 -12 to 2014-15

Note: * significant at p= 0.05, ** significant at p=0.01

As per table-4 calculated value of U-statistic is 1, which is more than the table value of U-statistic (0) at the level of significance 0.01. We have no enough evidence to reject the null hypothesis thus the data consisting with null hypothesis that there is no difference between Return on Average Assets of the ICICI bank and the HDFC bank is not significant at the level of p=0.01. It is further confirmed by z-value (-2.40) which is less than the table value of z-statistic (-2.58) at the level of p=0.01. So, the null hypothesis (H0-1) "There is no significant difference between the return on average assets of the ICICI bank and the HDFC bank" is accepted.

H0-2 There is no significant difference between Capital Adequacy Ratio of the ICICI bank and the HDFC bank.

Table -5 shows the calculated value of U-statistic as 2, which is equal to the table value of U-statistic (2) at the level of significance 0.05. So, it can be said that the difference between Capital Adequacy Ratio of the ICICI bank and the HDFC Bank is significant at the level of p=0.05. It is further confirmed by z-value (-2.19) which is more than the table value of z-statistic (-1.96) at the level of p=0.05. So, the null hypothesis (H0-2) "There is no significant difference between the Capital Adequacy Ratio of the ICICI bank and the HDFC bank" is rejected

Table 5 : Mann-Whitney U-Test for Capital Adequacy Ratio of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

Financial Year	ICICI Bank		HDFC Bank	
	Car Value	Rank	Car Value	Rank
2011-12	19.50	10	16.52	3
2012-13	18.50	9	16.80	6
2013-14	17.70	8	16.07	2
2014-15	17.02	7	16.79	5
2015-16	16.64	4	15.50	1
Sum of Rank order		38		17
No. Of Data		5		5
U-Value	2*			
Z-VALUE	-2.196			

Source: Annual reports of ICICI bank and HDFC bank for FY2011 -12 to 2014-15

Note: * significant at p= 0.05, **significant at p=0.01

H0-3 There is no significant difference between Cost to Income Ratio of the ICICI bank and the HDFC bank

Table 6 : Mann-Whitney U-Test for cost to income (%) of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

Financial Year	ICICI Bank		HDFC Bank	
	CIR Value	Rank	CIR Value	Rank
2011-12	42.90	5	49.68	10
2012-13	40.50	4	49.58	9
2013-14	38.20	3	45.61	8
2014-15	36.80	2	44.56	7
2015-16	34.70	1	44.28	6
Sum Of Rank Order		15		40
No. Of Data		5		5
U-Value	0**			
Z-VALUE	-2.615			

Source: Annual reports of ICICI bank and HDFC bank for FY2011 -12 to 2015-16

Note: * significant at p= 0.05, ** significant at p=0.01

Table-6 shows the calculated value of U-statistic as 0, which is equal to the table value of U-statistic (0) at the level of significance 0.01. So, it can be said that the difference between Cost to Income Ratio of the ICICI bank and the HDFC bank is significant at the level of p=0.01. It is further confirmed by z-value (-2.61) which is more than the table value of z-statistic (-2.58) at the level of p=0.01. So, the null hypothesis (H0-3) "There is no significant difference between Cost to Income Ratio of the ICICI bank and the HDFC bank" is rejected.

H0-4 There is no significant difference between Net NPA Ratio of the ICICI bank and the HDFC bank.

Table 7 : Mann-Whitney U-Test for Net NPA to Net Advance Ratio of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

Financial Year	ICICI Bank		HDFC Bank	
	NPA Value	Rank	NPA Value	Rank
2011-12	0.73	6	0.18	1
2012-13	0.77	7	0.20	2
2013-14	0.97	8	0.27	4
2014-15	1.61	9	0.25	3
2015-16	2.98	10	0.28	5
Sum of Rank Order		40		15
No. of Data		5		5
U-Value	0**			
Z-VALUE	-2.615			

Source: Annual reports of ICICI bank and HDFC bank for FY2011 -12 to 2015-16

Note: * significant at p= 0.05, ** significant at p=0.01

Table-7 reveals the calculated value of U-statistic as 0, which is equal to the table value of U-statistic (0) at level of significance 0.01. So, it can be said that the difference between Net NPA to Net Advance Ratio of the ICICI bank and the HDFC bank is significant at the level of p=0.01. It is further confirmed by z-value (-2.61) which is more than table value of z-statistic (-2.58) at the level of p=0.01. So, the null hypothesis (H0-4) "There is no significant difference between Net NPA Ratio of the ICICI bank and the HDFC bank" is rejected.

H0-5 There is no significant difference between Profit Per Employee Ratio of the ICICI bank and the HDFC bank

Table 8 : Mann-Whitney U-Test for Profit Per Employee of the ICICI Bank and the HDFC Bank (FY 2010-11 to 2015-16)

Financial Year	ICICI Bank		HDFC Bank	
	Value	Rank	Value	Rank
2011-12	1.10	4	0.80	1
2012-13	1.40	7	1.00	2.5
2013-14	1.40	7	1.20	5
2014-15	1.60	10	1.00	2.5
2015-16	1.40	7	1.50	9
Sum Of Rank Order		35		20
No. Of Data		6		6
U-Value	5*			
Z-VALUE	-1.569			

Source: Annual reports of ICICI bank and HDFC bank for FY2011 -12 to 2015-16

Note: * significant at p= 0.05, significant at p=0.01

Table-8 shows the calculated value of the U-statistic as 5, which is more than the table value of U-statistic (2) at the level of significance 0.05. We have no convincing evidence to reject the null hypothesis thus the data consisting with null hypothesis that there is no difference between Profit per Employee of the ICICI bank and the HDFC bank is not significant at the level of $p=0.05$. It is further confirmed by calculating z-value (-1.56) which is less than the table value of z-statistic (-1.96) at the level of $p=0.05$. So, the null hypothesis (H_0-5) "There is no significant difference between Profit per Employee of the ICICI bank and the HDFC bank" is accepted.

RESULTS AND DISCUSSION

For the period 2011-12 to 2015-16 the CAGR of number of branches, number of ATMs and the net profit of ICICI bank and HDFC bank are as under:

Table 9 : CAGR of Branches, ATMs and Net Profit (FY 2010-11 to 2015-16)

SI No.	Parameter	ICICI Bank (%)	HDFC Bank (%)
1	No. of branches	9.88	14.69
2	No. of ATMs	14.52	13.99

SI No	Financial Parameter	ICICI Bank	HDFC Bank	U-Statistic	Z-Value	Result
1	Return on Average Assets	16	39	5	1	Accepted
2	Capital Adequacy	15	40	5	0	Rejected
3	Cost to Income	15	40	5	0	Rejected
4	Net NPA to Net Advances	0.51	0.51	5	5	Rejected
5	Profit Per Employee	35	20	5	5	Accepted

reveals the stronger ATM base of ICICI bank as against the HDFC bank.

The CAGR of net profit of the ICICI bank is 11.18% during the study period as against the robust 20.96% of the HDFC bank. While the ICICI bank has failed to sustain steady growth in net profit the HDFC bank has succeeded in enhancing net profit at a very sound rate. This strongly indicates HDFC bank's operational efficiency as against the ICICI bank.

Table 10 : Results of Mann-Whitney U-test Applied to Financial Parameters

The Mann-Whitney U-test reveals that H_0-1 and H_0-5 are accepted and H_0-2 , H_0-3 and H_0-4 are rejected. The null hypotheses relating to Return on Average Assets and Profit Per Employee are accepted indicating that there is no significant difference in the banks under study as regards to these two parameters. However, the null hypotheses relating to Capital Adequacy, Cost to Income and Net NPA to Net Advances have been rejected indicating that there is significant difference as regards to the above said parameters in the banks under study.

CONCLUSION

The ICICI bank and the HDFC bank are the two premiere private sector banks, in India. The study has shown that both these banks have a good track record of performance during the study period. However, a critical analysis of the results reveals the fact that the rate of growth in the net profit during the study period is less in case of the ICICI bank as against the robust rate achieved in case of the HDFC bank. As regards to the number of branches the HDFC bank is doing well, but in case of growth in the number of ATMs the ICICI bank is doing better. Based on aggregate results of the select parameters considered for in the study it can be concluded that the HDFC bank's financial performance is better than that of the ICICI bank during the period under study. It is hoped that the results of the study will help the concerned banks in initiating necessary measures to analyse reasons for slow growth in certain areas of both the banks and to follow industry leader in the relevant segment of operations.

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Determinants of Profitability in Private Sector Banks of India

Gurmeet Singh

ABSTRACT

The study investigates the relationship between the return on equity of private sector banks in India and nine independent variables over the period 2005 to 2014 using Johansen's co-integration test, VECM and Granger causality test. The Johansen's co-integration test suggests that all the series under the study are found to be co-integrated of order one, indicating that there is a stable long-run equilibrium relationship in these series suggesting that the ROE of Indian private sector banks have co-integrated with the nine variables under the study. The findings from Granger causality based on the VECM indicate bidirectional causality exists between the return on equity (ROE) and all the variables under the study in long run. In short run ratio of secured advances to total advances granger causes return on equity but not the other way around. While, one way causality is observed from profit per employee to return on equity.

INTRODUCTION

Efficiency and profitability of the banking sector in India has assumed primal importance due to intense competition, greater customer demands and changing banking reforms. The Indian economy has seen wide range of economic reforms covering industry, trade, taxation, external sector, banking and financial markets since 1991. The most significant achievement of the financial sector reforms has been the marked improvement in the financial health of commercial banks in terms of capital adequacy, profitability and asset quality as also greater attention to risk management. Further, deregulation has opened up new opportunities for banks to increase revenues by diversifying into investment banking, insurance, credit cards, depository services, mortgage financing, securitization, and so on. At the same time, liberalization has brought greater competition among banks, both domestic and foreign, as well as competition from mutual funds, NBFC's, and other financial institutions. Increasing competition is squeezing profitability and forcing banks to work efficiently on shrinking spreads. Because banks still play an important role in the financial market, it is important to evaluate whether banks operate efficiently. In order to compete with other financial institutions, banks must increase their levels of efficiency.

Many emerging economies that adopted financial deregulation policies are now experiencing competitive banking practices. India is no exception, and as an emerging market is becoming a competitive and important market not only for financial products but also for other products. Indian banking is a considerable component in Asian financial affairs and has not been subjected to substantial research compared to the countries in the developed world.

The issues of profitability and efficiency of Indian banking system have emerged to be the touchstone for the success of banking system. There is an emerging need to develop a comprehensive framework for measuring their efficiency in transforming their resources for better performance and profitability. Such type of performance benchmarking has become extremely relevant for their success.

Key words

Efficiency, Profitability,
Indian Private Banks, Co-
integration Test, VECM

The problem of efficiency of banks has been studied over the years to bring insight into the problem of profitability, its cause and solution. Several studies have examined the impact of efficiency from different viewpoints in developed and emerging economies. However, the literature on the restructuring and development of the financial sector in the transitional economies and emerging markets are abundant. Ownership issues, especially the impact of the entry of foreign banks in transitional economies, are most documented. These studies generally find evidence that ownership matters.

LITERATURE REVIEW

In the literature, bank profitability is usually expressed as a function of internal and external determinants. The internal determinants originate from bank accounts (balance sheets and/or profit and loss accounts) and therefore could be termed micro or bank-specific determinants of profitability. The external determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation and performance of financial institutions. A number of explanatory variables have been proposed for both categories, according to the nature and purpose of each study.

Studies dealing with internal determinants employ variables such as size, capital, risk management and expenses management. Size is introduced to account for existing economies or diseconomies of scale in the market. Akhavein et al., (1997) and Smirlock (1985) find a positive and significant relationship between size and bank profitability. Demirguc-Kunt and Huizinga (1999) suggest that the extent to which various financial, legal and other factors (e.g. corruption) affect bank profitability is closely linked to firm size. In addition, as Short (1979) argues, size is closely related to the capital adequacy of a bank since relatively large banks tend to raise less expensive capital and, hence, appear more profitable.

Molyneux and Thornton (1992), among others, find a negative and significant relationship between the level of liquidity and profitability. In contrast, Bourke (1989) reports an opposite result, while the effect of credit risk on profitability appears clearly negative (Miller & Noulas, 1997). This result may be explained by taking into account the fact that the more financial institutions are exposed to high-risk loans, the higher is the accumulation of unpaid

loans, implying that these loan losses have produced lower returns to many commercial banks.

Bank expenses are also a very important determinant of profitability, closely related to the notion of efficient management. There has been an extensive literature based on the idea that an expenses-related variable should be included in the cost part of a standard microeconomic profit function. For example, Bourke (1989) and Molyneux and Thornton (1992) find a positive relationship between better-quality management and profitability.

Georgekutty (2000) in his study suggested that the lending capacity of the banks is adversely affected due to their inability to recycle the resources or to raise more resources from higher financing agencies. Any liquidity crisis in co-operative banks will subsequently hinder capital formation in agriculture, which will decelerate economic development, since they play a major role in rural lending. In a study on over dues, recovery performance and erosion of funds in central co-operative banks by Puyalvanan (1998) suggested that this problem is manifested more in the field of short-term co-operative credit. Heavy overdues at the primary level turn the societies dormant, creating a difficult situation for central banks to channel fresh credit.

Bourke (1989) found a significant positive relationship between capital adequacy and profitability indicating that banks with higher capital ratio are more profitable than banks with less capital ratio. For developed countries, Naceur (2003) reports a negative relationship between bank size and profitability in Tunisia. Cost to income ratio measures banks' expense management. Revell (1979) introduces the issue of the relationship between bank profitability and inflation. He notes that the effect of inflation on bank profitability depends on whether banks' wages and other operating expenses increase at a faster rate than inflation. The question is how mature an economy is so that future inflation can be accurately forecasted and thus banks can accordingly manage their operating costs. In this vein, Perry (1992) states that the extent to which inflation affects bank profitability depends on whether inflation expectations are fully anticipated. An inflation rate fully anticipated by the bank's management implies that banks can appropriately adjust interest rates in order to increase their revenues faster than their costs and thus acquire higher economic profits. Buch (1997) asserts that foreign-owned banks use modern technology from and rely on the human capital of their parent banks, so that they would be expected to perform better than government-

owned or domestic private banks in transitional economies. On similar lines, private banks would be expected to perform better than government-owned banks. Kraft and Tirtiroglu (1998) used stochastic frontier analysis (SFA) to examine the bank efficiency in Croatia in the mid-1990's and found that the newly organized private banks were more efficient relative to older state institutions. Jemric and Vujcic (2002) used data envelopment analysis (DEA) to analyze bank efficiency in Croatia in the late 1990's and found that foreign banks and new banks are more efficient. Nikiel and Opiela (2002) used distribution-free efficiency estimation for Polish banks in the late 1990's and found that foreign banks servicing foreigners and business customers are more cost-efficient but less profit efficient than other banks in Poland. Isik and Hassan (2003) examined the Turkish commercial banks during the deregulation period and found that the Turkish private banks began to close their gap with those public banks in the new environment. These studies suggest a positive relationship between foreign ownership and bank performance. Further, several studies on banking in transitional economies suggest relatively strong competitive effects of foreign bank entry. Claessens et al., (2001) investigated performance differences between domestic and foreign banks in eighty countries, both developed and developing, from late-1990's to mid 2000's and found that foreign bank entry was generally followed by a reduction in both profitability and the overhead expenses of domestic banks, suggesting that foreign participation improves the efficiency of domestic banking. Haslem et al., (1999) used data envelopment analysis to analyze the efficiency of U.S. banks operating internationally. It was found that management should focus on overall efficiency, but with particular attention to inputs, especially cash and real capital, and to foreign loans among the outputs.

There have been several studies analyzing bank efficiency in India. Sarkar et al., (1998) compared public, private and foreign banks in India to find the effect of ownership type on different efficiency measures. Ram Mohan (2002) (2003) also used financial measures for comparing operational performance of different categories of banks over a period of time. Bhattacharya et al., (1997) used DEA to measure the productive efficiency of Indian commercial banks in the late 1980's to early 1990's and to study the impact of policy of liberalizing measures taken in 1980's on the performance of various categories of banks. They found that the Indian public sector banks were the best performing banks, as the banking sector was

overwhelmingly dominated by the Indian public sector banks, while the new private sector banks were yet to emerge fully in the Indian banking scenario. Kumbhakar and Sarkar (2003) found evidence on Indian banks that while private sector banks have improved their performance mainly due to the freedom to expand output, public sector banks have not responded well to the deregulation measures. Ram Mohan and Ray (2004) compared the revenue maximizing efficiency of public, private and foreign banks in India, using physical quantities of inputs and outputs in the 1990's, using deposits and operating costs as inputs, and loans, investments and other income as outputs. They found that public sector banks were significantly better than private sector banks on revenue maximization efficiency, but between public sector banks and foreign banks the difference in efficiency was not significant. Shanmugam and Das (2004) studied banking efficiency using stochastic frontier production function model during the reform period, 1992-1999. They found that deposits are dominant in producing all outputs and the technical efficiency of raising interest margin is varied across the banks. In particular, they found that the reform measures that had been introduced since 1992 have not helped the banks in raising their interest margin. Also, in general, they found that private/foreign banks performed better than public banks. Das et al., (2004) analyzed the efficiency of Indian banks using data envelopment analysis using four input measures and found that, despite liberalization measures aimed at strengthening and improving the operational efficiency of the financial system, Indian banks were still not much differentiated in terms of input- or output-oriented technical efficiency and cost efficiency.

Sanjeev (2006) studied efficiency of private, public, and foreign banks operating in India during the period 1997-2001 using data envelopment analysis. He also studied if any relationship can be established between the efficiency and non-performing assets in the banks. He found that there is an increase in the efficiency in the post-reform period, and that non-performing assets and efficiency are negatively related. Kumar and Gulati (2007) studied the technical efficiency of public sector banks in India using two data envelopment analysis models. They found that foreign banks are found to be more cost-efficient but less profit-efficient relative to domestically owned private banks and state-owned banks. The banks affiliated with SBI group were found to outperform the nationalized banks in terms of operating efficiency.

Based on the above discussion, the present study tries to investigate the long run equilibrium relationship between the return on equity of private sector banks of India and nine variables by considering the following model:

$$X_t = (\text{ROE}_t, \text{NPA}_t, \text{DLR}_t, \text{SATA}_t, \text{BTA}_t, \text{BII}_t, \text{PTA}_t, \text{NIM}_t, \text{NTR}_t, \text{PER}_t)'$$

Where, ROE is return on equity, NPA is ratio of net NPA to net advances, DLR is ratio of deposits to total liabilities, SATA is ratio of secured advances to total advances, BTA is ratio of burden to total assets, BII is ratio of burden to interest income, PTA is ratio of operating profits to total assets, NIM is net interest income to total assets, NTR is non-interest income to total assets, PER is profit per employee and X is a 10×1 vector of variables.

DATA & METHODOLOGY

The aim of this paper is to investigate the relationship between the return on equity of private sector banks in India and nine independent variables. To accomplish the research objective yearly data ranging from 2005 to 2014 are obtained which comprises 180 data points for the analysis. The choice of study period is based on the availability of data series. Descriptions of variables and data sources are presented in Table 1.

Table 1: Description of Variables

Acronyms	Construction of Variable	Data Source
ROE	Return on equity	RBI Website
NPA	Ratio of net (non performing assets) NPA to net advances	RBI Website
DLR	Ratio of deposits to total liabilities	RBI Website
SATA	Ratio of secured advances to total advances	RBI Website
BTA	Ratio of burden to total assets	RBI Website
BII	Ratio of burden to interest income	RBI Website
PTA	Ratio of operating profits to total assets	RBI Website
NIM	Ratio of net interest income to total assets (Net Interest Margin)	RBI Website
NTR	Ratio of non-interest income to total assets	RBI Website
PER	Profit per employee (in Rupees Million)	RBI Website

The present study employs the time series data analysis technique to study the relationship between the ROE and NPA, DLR, SATA, BTA, BII, PTA, NIM, NTR and PER. In a time series analysis, the results might provide spurious results, if the data series are non-stationary. Thus, the data series must obey the time series properties i.e. the time series data should be stationary, meaning that, the mean and variance should be constant over time and the value of covariance between two time periods depends only on the distance between the two time period and not the actual time at which the covariance is computed. The most popular and widely used test for stationary is the unit root test. The presence of unit root indicates that the data series is non-stationary. The standard procedures of unit root test namely the Augmented Dickey Fuller (ADF) (1979) (1981) is performed to check the stationary nature of the series. Assuming that the series follows an AR (p) process the ADF test makes a parametric correction and controls for the higher order correlation by adding the lagged difference terms of the dependent variable to the right hand side of the regression equation. In the ADF test null hypothesis is that data set being tested has unit root. This provides a robustness check for stationary. The unit root tests also provide the order of integration of the time series variables. In a multivariate context if the variable under consideration are found to be I (1) (i.e. they are non-stationary at level but stationary at first difference), but the linear combination of the integrated variables is I (0), then the variables are said to be co-integrated (Enders, 2004). The Augmented Dickey Fuller (ADF) (1979; 1981) is performed to check the stationary nature of the series. The complete model with deterministic terms such as intercepts and trends is shown in equation (1).

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \dots + \delta_{p-1} \Delta y_{t-p+1} + \varepsilon_t \quad (1)$$

Where α is a constant, $\hat{\alpha}$ the coefficient on a time trend and p the lag order of the autoregressive process. Lag length for VAR system is, selected based on minimum sequential modified LR test statistic. The vector autoregression (VAR) is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables. The VAR approach sidesteps the need for structural modeling by treating every endogenous variable in the system as a function of the lagged values of all of the endogenous variables in the system. The mathematical representation of a VAR is:

$$y_t = A_1 y_{t-1} + \dots + A_p y_{t-p} + B x_t + \varepsilon_t \quad (2)$$

where y_t is a k vector of endogenous variables, x_t is a d vector of exogenous variables, A_1, \dots, A_p and B are matrices of coefficients to be estimated, and ε_t is a vector of innovations that may be contemporaneously correlated but are uncorrelated with their own lagged values and uncorrelated with all of the right-hand side variables.

Log Length Criteria computes various criteria to select the lag order of an unrestricted VAR (Lütkepohl, 1991). The sequential modified likelihood ratio (LR) test is carried out as follows. Starting from the maximum lag, test the hypothesis that the coefficients on lag l are jointly zero using the

In this model, the only right-hand side variable is the error correction term. In long run equilibrium, this term is zero. However, if y_1 and y_2 deviate from the long run equilibrium, the error correction term will be nonzero and each variable adjusts to partially restore the equilibrium relation. The coefficient α_i measures the speed of adjustment of the i -th endogenous variable towards the equilibrium.

Further to examine dynamic relationship between variables, bi-variate Granger Causality test (Engel & Granger, 1987) is applied. The bi-variate regressions of Granger Causality Test are:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_i y_{t-i} + \beta_1 x_{t-1} + \dots + \beta_i x_{t-i} + \varepsilon_t \quad (9)$$

$$x_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_i y_{t-i} + \beta_1 y_{t-1} + \dots + \beta_i y_{t-i} + u_t \quad (10)$$

For all possible pairs of (x, y) series in the group, the reported F -statistics are the Wald statistics for the joint hypothesis:

$$\beta_1 = \beta_2 = \dots = \beta_i = 0$$

For each equation, the null hypothesis is that x does not Granger-cause y in the first regression and y does not Granger-cause x in the second equation.

EMPIRICAL ANALYSIS

The descriptive statistics for all the variables under study, namely, ROE, NPA, DLR, SATA, BTA, BII, PTA, NIM, NTR and PER are presented in Table 2. The value of skewness and kurtosis indicate the lack of symmetric in the distribution. Generally, if the value of skewness and

kurtosis are 0 and 3 respectively, the observed distribution is said to be normally distributed. Furthermore, if the skewness coefficient is in excess of unity it is considered fairly extreme and the low (high) kurtosis value indicates extreme platykurtic (extreme leptokurtic). From the table it is observed that the frequency distributions of underlying variables are not normal. The significant coefficient of Jarque-Bera statistics also indicates that the frequency distributions of considered series are not normal.

To check the stationarity of the underlying data series, we follow the standard procedure of unit root testing by employing the Augmented Dickey Fuller (ADF) test. The results are presented in Table 3. On the basis of the ADF test, all the series are found to be non-stationary at level with intercept. However, after taking the first difference these series are found to be stationary at 1, 5 and 10 percent significance level. Thus the stationary test indicates that all series are individually integrated of the order I (1).

The presence and the number of co-integrating relationships among the underlying variables are tested through the Johansen procedure i.e., Johansen and Juselius (1990) and Johansen (1991). Specifically, trace statistic and the maximum eigenvalue are used to test for the number of co-integrating vectors. The result of VAR leg order selection criteria are presented in the Table 4. Leg order selected for the study is based on LR, FPE and AIC criterion. The results of both trace statics and the maximum eigenvalue test statistics are presented in Table 5. The trace statistic indicates four co-integrating equations and the maximum eigenvalue statistics identify three co-integrating equations. The results show that long-run equilibrium relationship exists between the ROE and NPA, DLR, SATA, BTA, BII, PTA, NIM, NTR PER.

Table 2: Descriptive Statistics of Variables

	ROE	NPA	DLR	SATA	BTA	BII	PTA	NIM	NTR	PER
Mean	11.6785	1.2222	80.6213	87.4397	0.9566	11.2702	2.0340	2.9912	1.3476	0.5012
Median	13.9550	0.9350	84.2800	88.6950	0.8600	9.8550	2.1650	2.8850	1.2900	0.4950
Maximum	25.7900	6.3400	90.7500	98.0800	3.2400	40.1200	3.9200	5.6200	2.7000	1.5000
Minimum	-63.7900	0.0300	52.2400	61.3000	-0.4400	-6.2900	-0.6800	1.0800	0.4200	-1.1000
Std. Dev.	11.0953	1.1172	9.6408	7.3655	0.6653	8.2131	0.8616	0.7634	0.4886	0.4292
Skewness	-3.3153	1.7661	-1.2559	-0.8422	0.6339	0.7895	-0.5310	0.6028	0.3426	-0.3495
Kurtosis	19.2561	6.6010	3.7128	3.2608	3.2895	3.6377	2.8870	3.7978	2.4750	4.2827
Jarque-Bera	2311.6870	190.8261	51.1291	21.7889	12.6815	21.7483	8.5538	15.6759	5.5889	16.0048
Probability	0.0000	0.0000	0.0000	0.0000	0.0018	0.0000	0.0139	0.0004	0.0611	0.0003
Observations	180	180	180	180	180	180	180	180	180	180

Source: Author's Estimation

Table 3: Result of Augmented Dickey-Fuller Unit Root Test

Variable			Trend		Trend & Intercept		None	
			t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*
D(ROE)	Augmented Dickey-Fuller test statistic		-10.8559	0.0000	-10.8716	0.0000	-10.8884	0.0000
	Test critical values:	1% level	-3.4681		-4.0117		-2.5783	
		5% level	-2.8780		-3.4359		-1.9427	
		10% level	-2.5756		-3.1420		-1.6155	
D(NPA)	Augmented Dickey-Fuller test statistic		-9.9924	0.0000	-10.0741	0.0000	-10.0048	0.0000
	Test critical values:	1% level	-3.4681		-4.0117		-2.5783	
		5% level	-2.8780		-3.4359		-1.9427	
		10% level	-2.5756		-3.1420		-1.6155	
D(DLR)	Augmented Dickey-Fuller test statistic		-11.9780	0.0000	-11.9515	0.0000	-12.0134	0.0000
	Test critical values:	1% level	-3.4681		-4.0117		-2.5783	
		5% level	-2.8780		-3.4359		-1.9427	
		10% level	-2.5756		-3.1420		-1.6155	
D(SATA)	Augmented Dickey-Fuller test statistic		-13.5533	0.0000	-13.5217	0.0000	-13.5900	0.0000
	Test critical values:	1% level	-3.4676		-4.0110		-2.5782	
		5% level	-2.8778		-3.4356		-1.9426	
		10% level	-2.5755		-3.1418		-1.6155	
D(BTA)	Augmented Dickey-Fuller test statistic		-12.6731	0.0000	-12.6598	0.0000	-12.7103	0.0000
	Test critical values:	1% level	-3.4679		-4.0114		-2.5782	
		5% level	-2.8779		-3.4357		-1.9427	
		10% level	-2.5756		-3.1419		-1.6155	
D(BII)	Augmented Dickey-Fuller test statistic		-13.6091	0.0000	-13.5906	0.0000	-13.6485	0.0000
	Test critical values:	1% level	-3.4679		-4.0114		-2.5782	
		5% level	-2.8779		-3.4357		-1.9427	
		10% level	-2.5756		-3.1419		-1.6155	
D(PTA)	Augmented Dickey-Fuller test statistic		-4.3357	0.0005	-4.3369	0.0036	-4.3506	0.0000
	Test critical values:	1% level	-3.4702		-4.0146		-2.5791	
		5% level	-2.8789		-3.4373		-1.9428	
		10% level	-2.5761		-3.1428		-1.6154	
D(NIM)	Augmented Dickey-Fuller test statistic		-9.1553	0.0000	-9.1349	0.0000	-9.1842	0.0000
	Test critical values:	1% level	-3.4692		-4.0133		-2.5787	
		5% level	-2.8785		-3.4366		-1.9427	
		10% level	-2.5759		-3.1425		-1.6155	
D(NTR)	Augmented Dickey-Fuller test statistic		-11.8400	0.0000	-11.8231	0.0000	-11.8745	0.0000
	Test critical values:	1% level	-3.4681		-4.0117		-2.5783	
		5% level	-2.8780		-3.4359		-1.9427	
		10% level	-2.5756		-3.1420		-1.6155	
D(PER)	Augmented Dickey-Fuller test statistic		-9.8080	0.0000	-9.7727	0.0000	-9.7861	0.0000
	Test critical values:	1% level	-3.4692		-4.0133		-2.5787	
		5% level	-2.8785		-3.4366		-1.9427	
		10% level	-2.5759		-3.1425		-1.6155	

*MacKinnon (1996) one-sided p-values.

Source: Author's Estimation

Source: Author's Estimation

Table 4: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1992.251	NA	6.12E-03	23.28198	23.46498*	23.35623
1	-1799.49	360.8653	2.08E-03	22.20337	24.21631	23.02007
2	-1647.982	266.0209	1.16E-03	21.60444	25.44731	23.16359
3	-1452.463	320.559	3.92E-04	20.49376	26.16657	22.79537
4	-1285.69	254.0383	1.90E-04	19.71733	27.22008	22.76139
5	-1126.061	224.5945	1.04E-04	19.02397	28.35665	22.81048
6	-947.0877	231.0005	4.77E-05	18.10567	29.2683	22.63464
7	-774.5889	202.5858	2.51E-05	17.26266	30.25523	22.53408
8	-597.8019	187.0653*	1.36e-05*	16.36979*	31.19229	22.38366*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Author's Estimation

Table 5: Result of Johansen's Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.415591	346.4686	239.2354	0.0000	91.85337	64.50472	0.0000
At most 1 *	0.317982	254.6152	197.3709	0.0000	65.44162	58.43354	0.0089
At most 2 *	0.268324	189.1736	159.5297	0.0004	53.42346	52.36261	0.0388
At most 3 *	0.221555	135.7501	125.6154	0.0104	42.8281	46.23142	0.1109
At most 4	0.187126	92.92202	95.75366	0.0771	35.42764	40.07757	0.1524
At most 5	0.14233	57.49438	69.81889	0.3203	26.25472	33.87687	0.3054
At most 6	0.096092	31.23966	47.85613	0.6536	17.27581	27.58434	0.5563
At most 7	0.038986	13.96386	29.79707	0.8427	6.80007	21.13162	0.9613
At most 8	0.022059	7.163794	15.49471	0.5587	3.81429	14.26460	0.8784
At most 9	0.019397	3.349504	3.841466	0.0672	3.349504	3.841466	0.0672

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's Estimation

Assuming one co-integrating vector, the short run and long run interaction of the underlying variables the VECM has been estimated based on the Johansen co-integration methodology. The results are presented in Table 6. The results show that a long-run equilibrium relationship exists between the return on equity of private sector banks of India (ROE) and variables under the study, namely, NPA, DLR, SATA, BTA, BII, PTA, NIM, NTR and PER. The estimated co-integrating coefficients for the ROE is based on the first normalized eigenvector are as follows. These values represent long term elasticity measures. Thus the co-integration relationship can be re-expressed as:

$$\text{ROE} = -2377.1840 + (-3.34204)*\text{NPA} + (-0.06498)*\text{DLR} + 18.63159*\text{SATA} + (-5410.193)*\text{BTA} + 14.71185*\text{BII} + (-$$

$$5485.251)*\text{PTA} + 5435.099*\text{NIM} + 480.8732*\text{NTR} + 12.91596*\text{PER}$$

The t-statistics are given in [] brackets while the error term are given in () brackets. The coefficients of deposit to liabilities ratio, secured advances to total advances, burden to total assets, operating profits to total assets, net interest margin, non-interest income to total assets and profit per employee are negative and statistically significant, while the coefficient of burden to interest income and ratio of non-performing assets are positive and statistically insignificant. The intercept term is negative. The results reveals that the relationship between ROE and DLR, SATA, BTA, PTA, NIM, NTR and PER is positive, while the relationship between the ROE and BII and NPA is negative.

Table 6: Results of Vector Error Correction Model

Panel A: Normalized Co-integration Coefficients										
ROE(-1)	D(NPA)	D(DLR)	D(SATA)	D(BTA)	D(BII)	D(PTA)	D(NIM)	D(NTR)	D(PER)	Constant
1.0000	-3.34204	-0.06498	18.63159	-5410.19300	14.71185	-5485.25100	5435.09900	480.87320	12.91596	-2377.1840
	(-6.44005)	(-1.93571)	(-3.17721)	(-1455.52)	(-3.88165)	(-1456.43)	(-1454.76)	(-63.5485)	(-35.164)	
	[-0.51895]	[-0.03357]	[5.86414]	[-3.71701]	[3.79010]	[-3.76623]	[3.73608]	[7.56703]	[0.36731]	
Panel B: Coefficient of Error Correction term										
Error Correction:	D(ROE)	D(NPA)	D(DLR)	D(SATA)	D(BTA)	D(BII)	D(PTA)	D(NIM)	D(NTR)	D(PER)
CointEq1	-0.13203	0.01037	-0.07279	-0.05416	-0.00038	0.00372	-0.00630	-0.00672	-0.00275	-0.002714
	(-0.04334)	(-0.00431)	(-0.02579)	(-0.02679)	(-0.00214)	(-0.02648)	(-0.00294)	(-0.00256)	(-0.00196)	(-0.00137)
	[-3.04652]	[2.40674]	[-2.82227]	[-2.02213]	[-0.17897]	[0.14051]	[-2.14120]	[-2.62798]	[-1.40426]	[-1.97908]
F-statistic	9.5517	6.0316	20.3061	11.0730	18.6394	17.6745	14.3300	15.6028	9.1612	12.2718

Standard errors in () & t-statistics in []

Source: Author's Estimation

Table 7: Result of Granger Causality Tes

Null Hypothesis:	Obs	F-Statistic	Prob.	Decision
NPA does not Granger Cause ROE	172	3.98175	0.0003	Reject
ROE does not Granger Cause NPA		4.15355	0.0002	Reject
DLR does not Granger Cause ROE	172	9.01781	4.00E-10	Reject
ROE does not Granger Cause DLR		6.1192	8.00E-07	Reject
SATA does not Granger Cause ROE	172	4.93876	2.00E-05	Reject
ROE does not Granger Cause SATA		1.6946	1.04E-01	Accept
BTR does not Granger Cause ROE	172	5.6092	3.00E-06	Reject
ROE does not Granger Cause BTR		4.61117	5.00E-05	Reject
BII does not Granger Cause ROE	172	6.98166	8.00E-08	Reject
ROE does not Granger Cause BII		6.03474	1.00E-06	Reject
PTA does not Granger Cause ROE	172	3.60348	0.0007	Reject
ROE does not Granger Cause PTA		2.14681	0.0346	Reject
NIM does not Granger Cause ROE	172	4.53534	6.00E-05	Reject
ROE does not Granger Cause NIM		3.26869	0.0018	Reject
NTR does not Granger Cause ROE	172	5.71222	0.0000	Reject
ROE does not Granger Cause NTR		6.28044	0.0000	Reject
PER does not Granger Cause ROE	172	2.67001	0.009	Reject
ROE does not Granger Cause PER		1.90421	0.0630	Accept

Source: Author's Estimation

The sign of the error correction coefficient in determination of ROE is negative (-0.13203) and the corresponding t-value and F-statistics are (-3.04652) and 9.5517 respectively. This indicates that return on equity (ROE) of private sector banks in India do respond significantly to re-establish the equilibrium relationship once deviation occurs.

The co-integration results indicate that causality exists between the co-integrated variables but it fails to show us the direction of the causal relationship. The pair-wise Granger Causality test (1987) is performed between all possible pairs of variables to determine the direction of causality. The rejected hypotheses are reported in Table 7. The results show the bidirectional causality exists between the return on equity (ROE) and all the variables under the study except secured advances to total advances ratio

(SATA) and profit per employee (PER). SATA granger causes return on equity but not the other way around. While, one way causality is observed from PER to ROE.

CONCLUSION

The aim of this paper is to investigate the relationship between the return on equity of private sector banks in India and nine independent variables under the study using Johansen's co-integration test, VECM and Granger causality test. The analysis used yearly data over the period 2005 to 2014 which is obtained from RBI website. It is believed that, the selected ratios, among others, represent the state of the Indian private sector banks.

To conclude, the Augmented Dickey Fuller test suggests that all the series are found to be non-stationary at level

with intercept. However, after taking the first difference these series are found to be stationary at 1, 5 and 10 percent level of significance. The Johansen's co-integration test suggests that all the series under the study are found to be co-integrated of order one, indicating that there is a stable long-run equilibrium relationship in these series suggesting that the ROE of Indian private sector banks have co-integrated with the nine variables under the study.

The findings from Granger causality based on the VECM indicate bidirectional causality exists between the return on equity (ROE) and all the variables under the study in long run. In short run secured advances to total advances (SATA) granger causes return on equity but not the other way around. While, one way causality is observed from profit per employee to return on equity. At present Indian private sector banks are in their nascent stage. More studies are required for the better implications of the results and strong evidences are required in favor of the results. The main implications of the results of the present study are for investors and policy makers. On the basis of the results, investors may decide about their investment in private sector banks of India, and the policy makers may frame right policies to increase efficiency and profitability of private sector banks.

However, the limitations of the study should not be overlooked. The present study is limited to only nine selected variables. Inclusion of more variables with a longer time period may improve the results. A logical extension of the study can be done by including more variables and analyzing it.

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Exploring the Role of Cooperatives in Enhancing the Social Empowerment of Rural Households through Financial Inclusion

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ABSTRACT

Purpose: The paper aims at exploring the role of cooperatives in enhancing the social empowerment of rural households through financial inclusion initiatives.

Design/methodology/approach: The primary data was collected from 540 beneficiaries of Cooperatives banks operating in three northern states of India i.e., J&K, Himachal Pradesh and Punjab using purposive sampling during Jan to June 2016. EFA, CFA and SEM were used for data purification and data analysis.

Findings: Study results reveals that financial inclusion through Cooperatives has direct and significant impact on social empowerment of rural poor households.

Originality/Value: The study makes contribution towards financial inclusion literature and fulfils the research gap to some extent by exploring the role of cooperatives in enhancing the social empowerment of rural households through financial inclusion. Present study can provide inputs to policymakers and other stakeholders of Cooperatives to formulate strategic policies which can help them in promoting and practicing financial inclusion both at the national and international level.

Limitations: The research has certain inescapable limitations. First, the in-depth analysis of the study is restricted to three northern states of India only because of inadequate time & resource availability. Second, the study is confined to the perception of financial inclusion beneficiaries only, which in future could be carried further on the perception of other stakeholders such as SHGs, banking correspondents etc. Third, possibility of subjective interpretation in some cases cannot be ruled out.

INTRODUCTION

Indian economy in general and banking services in particular have made rapid strides in the recent past, but a sizeable population especially the disadvantaged section of the society continue to remain excluded from the basic opportunities and banking services provided by the banking sector (Jaiswal and Bhasin, 2015; Manju and Mohika, 2014). Financial inclusion is the need of the hour and banking sector, particularly the Cooperative banking sector has played an important role as providers and facilitators in the credit delivery mechanism through their microfinance initiatives. At present, millions of people around the world have chosen a cooperative model of business enterprises to serve the cause of poor rural households and rural development. Financial inclusion through Cooperative is a plan of comprehensive growth (Singh & Kodan, 2011; Leeladhar, 2005; Demirguc et al, 2008; Mishra, 2012; Agarwal, 2010). It is the mechanism of ensuring access to financial services and timely & adequate credit whenever needed by the underprivileged section of the society such as farmers, small vendors, agricultural and industrial labourers, people engaged in unorganised sector, women, unemployed, old and physically handicapped people. This access helps in promoting social inclusion, building self-confidence, gaining financial empowerment and thus, leading to socio-economic empowerment of rural masses (Divya, 2014; Uma et al., 2013; Paramasivan & Ganeshkumar, 2013).

Key words

Social empowerment,
Cooperatives, Financial
inclusion, Purposive
sampling

LITERATURE REVIEW

According to Ravichandran and Alkhathlan (2009) very few people have access to Cooperative financial services. There are number of factors distressing access to financial services by weaker section of society in India such as lack of awareness, low incomes and assets, social exclusion, illiteracy, distance from bank branch, branch timings, cumbersome banking procedure, over requirement of documents for opening bank accounts, unsuitable financial products/schemes, language, high transaction costs, attitudes of Cooperatives officials etc. Hari (2015) asserted that access to financial services through Cooperatives is a distant dream for a majority of Indian population living in rural areas because banking system in India is still an emerging system due to non-availability of financial services. **Thorat (2010)** admitted that although there has been positive growth in covering excluded households, a vast majority of the population remains unserved. Swapan (2012) in his study attempted to explain that lack of regular and substantial income is one of the root causes of financial exclusion. He opined that people with low income do not qualify for banking services. Ramji (2013) viewed that generally farmers, agricultural and industrial labourers, unemployed, women, physically challenged and old age people are the most commonly financial excluded section of the society. This section of the society is greatly addressed by the Cooperative banks. Pal & Sura (2006) opined that the overall position of Cooperatives in India is not quite encouraging. The poor credit-deposit ratio is still making a dent on the desired functioning of Cooperatives. Since the Cooperatives are supposed to be a bank for poor people, government should spread the branches of Cooperatives at grass root level to provide such financial service to the really needy rural population. **Prasana (2016)** recommended relaxation of KYC norms, opening of branches in unbanked rural centers so as to improve banking penetration and financial inclusion rapidly. There is a need to revitalise these Cooperatives on the pattern & recommendations made by the Vaidyanathan Committee for financial inclusion in the rural areas. Kainth (2011) claimed that Cooperatives have been working for financial inclusion for more than a century. They are the oldest form of microfinance institutions serving remote areas, mobilising local resources through saving products and favouring the implications of the beneficiaries in a self help dynamic. However, one of their weaknesses is their governance.

Thus, these reviews provide knowledge about the financial aspects of Cooperatives, which would be of immense help in exploring the role of Cooperatives in financial inclusion and social empowerment of rural households.

NATURE AND SCOPE OF THE STUDY

The present study explores the role of Cooperatives in enhancing the social empowerment of rural households through financial inclusion. The study is both suggestive and evaluative in nature. The scope of the study is restricted to three northern states of India viz., J&K, Punjab and Himachal Pradesh. Primary data were collected from beneficiaries of financial inclusion belonging to four Cooperative banks operating in Jammu region of J&K State viz., The Citizen Cooperative Bank; The Jammu Central Cooperative Bank; Devika Urban Cooperative Bank Ltd.; Women Cooperative Credit Bank and three Cooperative banks from Punjab i.e., The Amritsar Central Cooperative Bank Limited, Punjab (TACCBLP); The Gurdaspur Central Cooperative Bank Limited, Punjab (TGCCBLP) and The Hindu Cooperative Bank Limited, Punjab (THCBLP) and The Kangra Central Cooperative Bank (KCCB) from Himachal Pradesh. The responses were collected using a self developed questionnaire sub-divided into socio-economic variables and specific information relating to the dimension of social empowerment.

NEED OF THE STUDY

In the present study, the researcher has found that various conceptual studies have been conducted on financial inclusion through Cooperatives and very few empirical studies based on secondary information that too with limited geographical coverage, have touched the few aspects of financial inclusion through Cooperatives. But no systematic and comprehensive study has so far been conducted to explore the role of Cooperatives in enhancing social empowerment of rural households through financial inclusion. Further, there is a paucity of empirically tested relationship between financial inclusion and social empowerment. Thus, the aforesaid gap in the existing literature necessitated the present work, which can prove to be an asset for the policy makers both at the national and international level.

OBJECTIVES OF THE STUDY

The present study is undertaken with the following objectives:

1. To examine the direct impact of financial inclusion on social empowerment.
2. To offer suggestions to enhance the role of cooperatives in social empowerment of rural households through financial inclusion.

HYPOTHESIS DEVELOPMENT

Cooperative is a tool for empowering financial users by achieving economic and social empowerment of beneficiaries (Jha, 2014; Barik, 2009; Cosgun and Bekiroglu, 2009; Sharma, 2008). To improve the financial condition and living standard of the poor & disadvantaged classes, efforts be made to improve financial performance of Cooperatives. Cooperative provides monetary fuel for economic development & is considered critical for securing inclusive growth (Sharma, 2010). Macroeconomic substantiation indicates that well developed financial systems including Cooperatives have a strong positive impact on economic development over long time periods (Coon & Leistritz, 2012; Cull et al., 2012; Pashkova, 2009 and Thorsten, 2007). Financial inclusion through Cooperatives is the key to empowerment of poor, underprivileged and low skilled rural households (Malimba, 2011). Through financial inclusion, Cooperatives increases the economic opportunities for the poor & low income people, which lead towards positive result in social progress, economic development, economic empowerment and social/political/legal empowerment (Sarojit, 2015; Mishra, 2012 and Samikha, 2004). Therefore, it is hypothesised that:

H₁: Financial inclusion through Cooperatives has significant impact on social empowerment.

PRETESTING

To arrive at the final sample size, pretesting was done on 60 respondents. Each from three states viz., J&K, Himachal Pradesh and Punjab, 20 respondents were selected on judgement basis. Subsequent to tabulation of pre-testing results, some items were modified and few were deleted and ultimately 30 items were retained for final survey. The final sample size came out to be 789 using following formula (Malhotra, 2009, which is round off to 800.

$$n = \frac{D^2 * z^2}{\delta^2}$$

DATA COLLECTION

Primary data for the study were collected from the beneficiaries of four cooperative banks operating in Jammu region of J&K State. Purposive sampling technique was adopted in contacting beneficiaries. For making the study comparative, beneficiaries of Cooperative banks operating in neighbouring tehsils of Himachal Pradesh and Punjab States, having similar topography were also contacted on judgement sampling, criteria adopted was availability and willingness to respond. Questionnaires were distributed to 800 beneficiaries, out of which 557 responded back. Seventeen (17) questionnaire were rejected because of incomplete response, so the final sample size arrived at 540 respondents shimmering an effective response rate of 67.5 per cent.

NORMALITY

To check the normalcy of the data, the study uses two statistical tests i.e., Skewness and Kurtosis with the help of SPSS 17.0 version and the value of Skewness and Kurtosis were -.224 and .215, which are in between threshold limit of ± 1 . This shows that the data were normally distributed.

STATISTICAL TOOLS AND TECHNIQUES APPLIED

The following statistical techniques have been applied for data analysis.

- Exploratory factor analysis
- Confirmatory factor analysis
- Structural equation modelling

DATA ANALYSIS AND INTERPRETATION

Perception about role of Cooperatives in enhancing social empowerment of rural households through financial inclusion among the beneficiaries was examined under the following sub-heads:

- Scale purification
- Confirmatory factor analysis
- Relationship between financial inclusion and social empowerment through Cooperatives using SEM

SCALE PURIFICATION

The technique of factor analysis with the process of Principal Component Analysis along with Varimax Rotation brought the construct to the level of 19 statements out of 30 statements originally kept in the domain of social empowerment with variance explained at 73.957, KMO value 0.767 and Bartlett value of 5095.367 (Table 1). The factor loadings ranges from 0.506 to 0.956 and communalities from .506 to .919 as revealed by Table 2.

Table 1: Output From Factor Analysis With Regard To Social Empowerment*

Rounds	Variance explained	Items emerged	No of factors extracted	Iterations	No of items deleted	KMO	Bartlett test of sphericity
1	72.794	30	10	15	6	.685	9095.598
2	75.172	24	07	09	2	.681	6691.215
3	67.716	22	07	10	3	.698	5657.990
4	73.957	19	07	07	-	.726	5095.367

*Source: Survey

A brief description of the factors emerged are as under:

Factor 1: Social groups

This factor includes four items namely, 'You often meet with & talked to people from other social groups outside your home regarding financial inclusion', 'You can bring any change in the society easily', 'FI has enhanced your confidence level, business relations, reduced family crisis & social violence' and 'FI has impelled you to join some voluntary group/organization'. The mean values of this factor varied from 2.61 to 3.86, factor loading between .879 to .956 and communalities from .898 to .919. This factor indicates that meeting with people from other social groups regarding financial inclusion, bringing a change in society, building confidence, improving business relations, reducing family crisis & social violence is necessary for social empowerment.

Factor 2: Liberation

This factor comprises of three items namely, 'Your response and feedback is always appreciated regarding any financial issue', 'You are socially more developed after covering under FI drive' and 'FI has empowered you to move freely to any NGO & SHGs for help & support'. The mean values of this factor varied from 3.78 to 4.03, factor loading between .680 to .879 and communalities from .704 to .805. This factor stresses on free movement of beneficiaries to any NGO & SHGs for availing any type of financial assistance.

Factor 3: Creditworthiness

This factor includes three items i.e., 'FI has made you financially independent', 'FI has increased your level of confidence' and 'FI has changed your personality & life style' which exhibits ranges of mean values from 4.01 to 4.56, factor loading between .669 to .834 and communalities from .501 to .788. This factor underlines that positive change in personality & lifestyle, financial independence and building level of confidence is necessary for social empowerment through financial inclusion.

Factor 4: Awareness

This factor contains only two items namely, 'You are aware about all special schemes offered by Govt.' and 'You are helped by your bank in availing variety of saving, loan, livelihood and housing products' which exhibits mean values 2.149 & 3.909, factor loadings .722 & .829 and communalities .728 & .729. This factor confirms that awareness about various schemes offered by government is necessary for financial inclusion.

Factor 5: Grievances

This factor envisages two items i.e., 'You made complaints to the authorities regarding the delivery of financial services' and 'FI has improved your health and household hygiene' which exhibits mean values 2.98 & 3.99, factor loadings .817 & .758 and communalities .696 & .808. This factor connotes that Cooperative banks must redress the grievances of its customers while delivering financial services.

Factor 6: Improved technical skills

This factor takes into consideration only two items namely, 'Bank helps you in making small value remittances at low cost' and 'FI has improved your technical skills' with range of mean values 4.03 & 2.39, factor loadings .830 & .770 and communalities .729 & .659. This factor underlines that improvement in technical skill through financial inclusion is necessary for social empowerment.

Factor 7: Decision making

The final factor includes three items i.e., 'Your family supports your business decisions', 'You are influenced by others when choosing a candidate to support in election' and 'FI has made you independent in taking decisions'. The mean values of this factor ranges from 3.24 to 4.33, factor loadings between .698 to .828 and communalities

from .506 to .768. This factor underlines that all items significantly contribute to the construct.

RELIABILITY

After purification of scale items falling within the sphere of social empowerment, seven factors emerged. As it is noticeable from Table 2, the Cronbach’s reliability coefficient for all the 19 items underlying seven factors ranges from .572 to .958. The alpha reliability coefficients for F1 i.e., Social groups (.958) is higher than the criteria of .77 obtained by Gordon and Narayanan (1984) indicating high consistency. The alpha reliability coefficients for other factors such as F2: Liberation (.755), F3: Creditworthiness (.736), F4: Awareness (.689) and F5: Grievance (.577), F6: Improves technical skills (.580), F7: Decision making (.572) are also at minimum acceptable level of 0.50 as recommended by Brown (1996) and Kakati & Dhar (2002) thereby obtaining satisfactory internal consistency. The reliability and adequacy of sample size to yield distinct and reliable factors is further demonstrated through Kaiser-Meyer-Olkin measure of sampling adequacy that is .726 and all factors loadings are greater than 0.50.

VALIDITY

The seven factors obtained alpha reliability, higher or equal to 0.50 and satisfactory KMO value at .726, indicating significant construct validity of the construct (Hair et al., 2009).

CONFIRMATORY FACTOR ANALYSIS

In order to assess the fitness, reliability and validity of the construct i.e., social empowerment, CFA is applied.

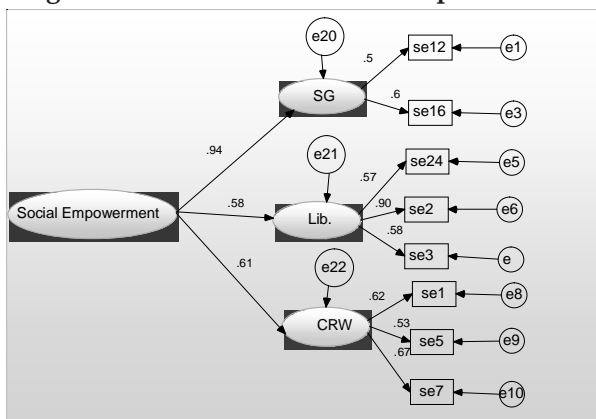
Note: SG= Social groups, Lib= Liberation, CRW= Creditworthiness; Se12= You often meet with & talked to people from other social groups outside your home regarding financial inclusion, se16=FI enhanced your confidence level, business relations and reduced family crisis & social violence, se24= Your response and feedback is always appreciated regarding any financial issue, se29=You are socially more developed after covering under FI drive, se30= FI has empowered you to move to any NGO & SHG for help & support, se1= FI has made you financially independent, se5=FI has increased your level of confidence, se7=FI has changed your personality & life style and e1-e22 are error terms.

Figure 1, depicts second order CFA is performed on social empowerment construct which consists of three factors. EFA on social empowerment construct consists of seven factors viz., social groups, liberation, creditworthiness, awareness, grievances, improves technical skills and decision making. While running CFA, four factors namely, awareness, grievances, improves technical skills and decision making got deleted as they are not meeting the set criteria. The results reveals that the model fit statistics are within recommended levels i.e. CMIN/DF = 2.45, GFI = .975, AGFI = .930, TLI = .951, CFI = .916, RMR= .018 and RMSEA = .080 (Table 4.11). Additionally, this model has been found to be valid and reliable, as AVE is .604, composite reliability equals to .939. The value of Cronbach’s alpha is .865 and all items loading above .50 (Table 3). Thus, validity and reliability got established.

RELATIONSHIP BETWEEN FINANCIAL INCLUSION AND SOCIAL EMPOWERMENT

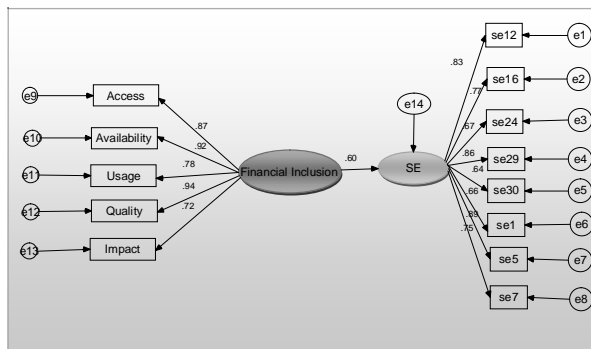
After applying CFA and checking for reliability and validity, SEM is applied by using AMOS 16.0 to assess the fitness of structural model. The SEM results indicates that model fit the data outstandingly (CMIN/DF = 3.99, GFI = .914, AGFI = .954, CFI = .923, NFI = .909, TLI = .942 and RMSEA = .080, Figure 2, Table 5). SEM results reveals that financial inclusion has positive and significant relation with social empowerment ($\beta = .60, p = .000$). Hence, the hypothesis ‘Financial inclusion through Cooperatives has direct and significant impact on social empowerment’ stands accepted.

Figure 1 : CFA Model for Social Empowerment*



*Source: Survey

Figure 2: Impact of Financial Inclusion on Social Empowerment*



*Source: Data analysis

CONCLUSION AND STRATEGIC IMPLICATIONS

On the basis of above analysis, the major findings of the study are as under:

1. The mean score for the item ‘you are aware about all the special schemes offered by the Govt. arrived low (2.14)’, which deduced that there was lack of awareness among rural masses about various schemes offered by Govt. regarding financial inclusion.
2. The beneficiaries had responded low for the item ‘you made complaints to the authorities regarding the delivery of financial inclusion’, which leads to the conclusion that beneficiaries feel hesitant in complaining to the concerned authorities regarding delivery of financial products & services.
3. The findings of the SEM model revealed that financial inclusion through Cooperatives had positive and direct impact on social empowerment ($\beta = .62, p = .000$).
4. It was also observed that most of rural households did not open their accounts with the Cooperative banks because of distance from bank branch, unsuitable branch timings, over requirements of documents, cumbersome account opening norms, illiteracy, language problem and attitude of bank officials.
5. The findings of the study revealed that respondents belonging to State of J&K were found to be less satisfied with the financial inclusion efforts of Cooperative banks as compared to respondents

belonging to State of Punjab and Himachal Pradesh. Lack of awareness among people concerning the significance of financial products & services, inappropriate credit terms and administration were found to be the most compelling factors.

6. It was also observed that unemployment, inadequate financial resources and poor health condition had become a major constraint for the rural households to work hard and earn adequate amount to continue their day-to-day living.

In order to achieve inclusive growth, the following suggestions are offered to expand financial inclusion initiatives to reach out to the people at the gross-root level.

1. State-wise analysis revealed that respondents belonging to state of Punjab and Himachal Pradesh are more satisfied with the Cooperative banks as compare to respondents belonging to J&K state. To bring respondents of J&K at par with the respondents of Punjab and Himachal Pradesh, Cooperative banks in J&K must create awareness among people concerning the significance of financial services through advertisement and financial inclusion campaign, by distributing the pamphlets, enacting plays and skits, arranging stalls in local fairs, exhibitions etc.
2. It was observed that most of the people in rural areas do not open their account with the bank because of cumbersome account opening norms. To facilitate easy opening of bank accounts especially for small customers, Cooperative banks should relax KYC norms to such an extent that an account can be opened simply just by giving a self certification in the presence of bank officials.
3. During the survey, it was found that most of bank customers were illiterate, having no or very little knowledge about banking products & services. The Cooperative banks should provide financial education to diverse target groups including school and college students, farmers, women, rural and urban poor, pensioners and other citizens for disseminating information about various financial products and services to enable them to make financial decisions.
4. The Cooperative banks should constitute grievances handling machinery to redress the customer’s complaints promptly.

Table 2: Output From Factor Analysis On The Dimensions Of Financial Inclusion*

Dimension	Variables	M	SD	FL	Eigen values	% of VE	Communality	Alpha (α)
Social empowerment	Factor 1: Social groups	3.415			3.702	18.864		.565
	▪ You often meet with & talked to people from other social groups outside your home regarding financial inclusion	3.627	1.866	.956			.912	
	▪ You can bring any change in the society easily	3.561	1.998	.940			.905	
	▪ FI enhanced your confidence level, business relations and reduced family crisis & social violence	3.863	1.878	.941			.919	
	▪ FI has impelled you to join some voluntary group/organization	2.611	1.976	.928			.898	
	Factor 2: Liberation	3.901			2.640	11.057		.958
	▪ Your response and feedback is always appreciated regarding any financial issue	3.778	0.578	.879			.704	
	▪ You are socially more developed after covering under FI drive	4.032	0.552	.837			.805	
	▪ FI has empowered you to move to any NGO & SHGs for help & support	3.883	0.527	.680			.761	
	Factor 3: Creditworthiness	4.343			2.195	10.911		.755
	▪ FI has made you financially independent	4.562	0.564	.834			.788	
	▪ FI has increased your level of confidence	4.452	0.626	.706			.626	
	▪ FI has changed your personality & life style	4.015	0.561	.669			.501	
	Factor 4: Awareness	3.029			1.725	8.692		.736
	▪ You are aware about all special schemes offered by Govt.	2.149	0.605	.829			.729	
	▪ You are helped by your bank in availing variety of saving, loan, livelihood and housing products	3.909	0.456	.722			.728	
	Factor 5: Grievances	3.489			1.504	8.661		.689
	▪ You made complaints to the authorities regarding the delivery of financial services	2.981	1.058	.817			.696	
	▪ FI improved your health and household hygiene	3.998	0.650	.758			.808	
	Factor 6: Improve technical skills	3.212			1.265	8.642		.577
	▪ Bank helps you in making small value remittances at low cost	4.034	0.556	.830			.729	
	▪ FI has improved your technical skills	2.390	0.998	.770			.768	
	Factor 7: Decision making	3.769			1.020	7.131		.580
	▪ Your family supports your business decisions	3.241	1.055	.828			.672	
	▪ You are influenced by others when choosing a candidate to support in the election	3.736	0.777	.558			.506	
	▪ FI has made you independent in taking decisions	4.331	0.698	.508			.768	
	Total Variance Explained						73.957	

*Source: Data analysis

Table 3: Results Of Confirmatory Factor Analysis (Cfa) Fit Indices*

Dimensions	Rounds	Total items	Items deleted	CMIN/DF	GFI	AGFI	TLI	CFI	RMR	RMSEA
Social empowerment	1	14	2	6.31	.872	.793	.718	.811	.052	.107
	2	11	3	5.14	.891	.760	.815	.854	.039	.098
	3	9	1	4.66	.934	.847	.889	.876	.023	.086
	4	8	---	2.45	.975	.930	.951	.916	.018	.080

*Source: Data analysis

Table 4: Reliability & Validity Of Latent Construct*

Construct	AVE	Composite reliability	Cronbach's alpha (α)
Social empowerment	.604	.939	.865

*Source: Data analysis

Table 5: Fitness Of The Structural Model*

Model	CMIN/DF	GFI	AGFI	CFI	NFI	TLI	RMSEA
Final model	3.99	.914	.954	.923	.909	.942	.080

*Source: Data analysis

- Poor health condition becomes a constraint for the rural people to work hard and earn adequate amount to continue their day-to-day living. In order to get rid of this stumbling block, healthcare facilities be improved both in urban and rural areas.
- In order to safeguard the interest of depositors and other stakeholders, Cooperative banks should follow the core principles of corporate governance like, fairness, transparency, accountability and responsibility.

Since very beginning, Cooperative banks have been playing very crucial role in the social empowerment of the rural households by making them available institutional credit at reasonable cost, but accessibility of financial services to a common man still remains a dream for many rural people. For enhancing social empowerment of rural poor households through financial inclusion initiatives of Cooperative banks, suitable mechanism must exist for making people aware about financial products & services offered by Cooperative banks that must be compatible to their needs and requirements.

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Performance Appraisal of ICICI Prudential Life Insurance Company Limited Using the Caramel Model

Anoop Kumar Singh and Sumbul Fatima

ABSTRACT

Insurance sector is one of the most emerging service sectors among the financial services in the economy as people are now more aware and concerned to cover risk in every phase of their life. Insurance has gradually become a widespread service industry of the Indian economy. It is playing a dynamic role in employment generation and contributing towards the rapid economic growth. With the introduction of IRDA act, privatization took place in life insurance business affecting somehow the growth of Life Insurance Corporation of India. Among the private players, ICICI Prudential Life Insurance Company has been able to earn its name and capture a good market share in the life insurance industry. This paper is an attempt to evaluate the growth and performance of ICICI Prudential Life Insurance Company, one of the major private sector life insurance companies through certain parameters like net profit, net premium, number of branches as well as CAMEL Model has been used to analyze certain ratios like capital to total assets ratio, net premium to gross premium ratio etc. These are further statistically tested using the one sample t-test.

INTRODUCTION

The private sector participation led to major changes in the insurance sector especially in the life insurance sector where the giant public company Life Insurance Corporation of India faced the competition for the first time. Since then many private companies have ventured into the life insurance business. ICICI prudential is one such company that came in existence since the opening of private players in the life insurance business and is giving tough competition to the public company as well as to other private companies. Nationalization in the Indian insurance industry was done with an objective of reaching to every individual in all the corners of the country, mobilizing huge financial resources and building up the nation. All laws relating to insurance industry has evolved progressively giving a way from nationalization to privatization and allowing foreign investment. Providing insurance is like giving protection against unforeseen risk of life and thereby building sense of security. Today life insurance is viewed as long term secured investment by customers. As quoted by ICICI Chairperson Ms. Chanda Kochhar, "The insurance sector will be a key beneficiary of the positive trends in the economy. The existing under penetration of the insurance sector itself provides substantial headroom for future growth."

ICICI Prudential Life Insurance Company Limited (ICICI Prudential Life) is a joint venture between ICICI Bank, India's largest private sector bank and Prudential plc, a leading international financial services group headquartered in the United Kingdom. ICICI Bank and Prudential plc hold 74% and 26% stakes respectively in the company. The ICICI Life Insurance Company started its operation from the year 2000 in December. It has achieved a total of Rs 1 trillion assets under management (AUM) becoming the first private life insurer to tap this growth since it began its operation and had AUM as of Rs 1 billion. This journey from 1 billion to 1 trillion itself shows its tremendous

Key words

Net Premium, Gross premium, Capital, Total Assets, Operating Expenses.

growth. ICICI Prudential Life has been able to maintain its leading position on retail weighted received premium basis (RWRP) among private life insurers in the country providing a variety of products to cater to different customers of different age so that they could achieve their financial goals.

OBJECTIVES

1. To examine the present status and share of ICICI Prudential Life Insurance Company Ltd. in the life insurance business.
2. To assess the growth of ICICI Prudential Life Insurance Company Ltd. with respect to its net profit, number of policies, number of branches and net premium earned over a period of time.
3. To analyze the overall performance of ICICI through various financial ratios during the study period.

RESEARCH METHODOLOGY

The present study is exploratory and analytical in nature. An attempt has been made to know and discuss about the leading private life insurance company operating in India through its policies and programmes. The secondary data have been used obtained from various issues of annual reports of IRDA, ICICI and varied research papers. The analysis of the paper is divided into two sections. The first section evaluates the performance of the company for a period of ten years from 2005-2015 in terms of its branches, net profit, net premium and number of policies issued. The annual growth rate has also been calculated to know the changes therein. Another section of the paper deals with CAMEL Model wherein capital to total assets ratio, net premium to gross premium ratio, operating expenses to net premium ratio etc have been dealt with in percentage form and analysis has been done based on it. These ratios are further statistically tested using SPSS software. The one sample t-test has been applied to verify the results.

HYPOTHESES

$H_{0(1)}$: There is no significant difference in the performance of ICICI Prudential with respect to capital adequacy over the study period.

$H_{0(2)}$: There is no significant difference in the performance of ICICI Prudential with respect to asset quality over the study period.

$H_{0(3)}$: There is no significant difference in the performance of ICICI Prudential with respect to reinsurance and actuarial issues over the study period.

$H_{0(4)}$: There is no significant difference in the performance of ICICI Prudential with respect to management soundness over the study period.

$H_{0(5)}$: There is no significant difference in the performance of ICICI Prudential with respect to earnings and profitability over the study period.

$H_{0(6)}$: There is no significant difference in the performance of ICICI Prudential with respect to liquidity over the study period.

DATA ANALYSIS AND INTERPRETATION

Since its inception ICICI has been a consistent player among all private life insurers. During the financial year 2015 it has been able to cross the milestone of Rs 3 trillion in terms of total sum assured. The company enjoyed a great amount of trust among its customer base as 18.2% growth has been registered in retail renewal premium during the financial year 2015. The company's efficiency and its continuous efforts could be seen through the amount of assets being under the management of ICICI's staff. To know the growth of the company the paper has been divided into two sections.

SECTION I

The first section evaluates the performance through four parameters namely its number of branches, number of policies, net profit and net premium for a time span of ten years from 2005-2015 and annual growth has been calculated to know the growth trend of each parameter.

Table 1: Number of Branches

Financial year	No. of branches	AGR %
2005-06	177	-
2006-07	583	229.38
2007-08	1,956	235.51
2008-09	2,099	7.31
2009-10	1,918	-8.62
2010-11	1,404	-26.80
2011-12	992	-29.34
2012-13	559	-43.65
2013-14	559	0
2014-15	547	-2.15

Source: Computed from ICICI Prudential Life Insurance Annual Reports, various issues.

AGR -Annual Growth Rate

ICICI Prudential has been able to open 177 branches by the year 2006 since its inception. The growth in its business could be seen through the openings of its branches that stood at 583 during the year 2006-07 and then at 1956 during the year 2007-08, the rate of growth from the previous year was around 230% and 236% respectively. However in the next year the number of branches increased to 2,099 but the rate of increase was much lower at 7.3% than the previous year. The number of branches were 1918 in the year 2009-10 which declined to 1404 in the succeeding year 2010-11 at the rate of -26.80%. ICICI has closed 412 branches in the next year thereby having 992 branches at the end of 2011-12. During this year the rate of decline was even more i.e. by -29.34%. The year 2012-13 has experienced the greatest fall in the total number of branches which stood around at 559. The rate of fall was -43.65% during this year. The next succeeding year neither saw any closure of branches nor any addition in its number and therefore it remained the same at 559 branches. However, the result was much better in the year 2014-15 as the number of branches closed was only 12 that it fell by only -2.15%.

Table 2: Net profit (in Rs. thousands)

Financial year	Loss	Profit
2005-06	(18,78,800)	
2006-07	(64,89,072)	
2007-08	(1,39,50,627)	
2008-09	(77,96,996)	
2009-10		25,79,685
2010-11		80,76,228
2011-12		1,38,41,292
2012-13		1,49,58,350
2013-14		1,56,55,897
2014-15		1,63,42,915

Source: Computed from ICICI Prudential Life Insurance Annual Reports, various issues.

The performance of the company in terms of net profit has been satisfactory. The initial years resulted in net loss of Rs.18,78,800 thousands which further increased to Rs.64,89,072 thousands in 2006-07. ICICI's net profit in the year 2009-10 was Rs.25,79,685 which increased to Rs.80,76,228 in the next year 2010-11. The year 2011-12 resulted in net profit of Rs.1,38,41,292 which increased by Rs.57,65,064. The next year saw a total net profit of Rs.1,49,58,350 which increased by 11,17,058 from the previous year. The year 2013-14 resulted in net profit of Rs.1,56,55,897 which increased by Rs.6,97,547 and the next year also; the increase in profit was by only Rs.6,87,018 which stood at Rs.1,63,42,915.

Table 3: Net premium (in Rs. thousands)

Financial year	Net premium	AGR %
2005-06	4,25,42,100	-
2006-07	7,89,68,177	85.62
2007-08	13,53,67,655	71.42
2008-09	15,31,81,936	13.16
2009-10	16,47,89,551	7.58
2010-11	17,81,69,762	8.12
2011-12	13,92,78,800	-21.83
2012-13	13,41,72,372	-3.67
2013-14	12,28,26,527	-8.46
2014-15	15,16,04,500	23.43

Source: Computed from ICICI Prudential Life Insurance Annual Reports, various issues.

AGR –Annual Growth Rate

The growth of ICICI in terms of net premium collected during the period under study has been quite mixed. The year 2006-07 saw the highest jump of 85.62% in net premium earned. Although net premium increased in further years but the rate of increase declined from 71.42% to 13.16% to 7.58% in the year 2007-08, 2008-09, 2009-10 respectively. In the year 2010-11 the net premium was Rs.17, 81, 69,762 which increased from Rs.16, 47, 89,551 in the year 2009-10. The rate of increase was 8.12%. The next year 2011-12 saw a decline in net premium collection and it declined hugely at the rate of -21.83%. Again in the next year 2012-13 there was a decline of -3.67% in net premium collection and the figure stood at Rs.13, 41, 72,372. Again in the next year the rate of decrement was greater than the previous year and it came around to be Rs.12, 28, 26,527. The year 2014-15 saw a growth in net premium amount which resulted in total collection of net premium at Rs.15, 16, 04,500 which rose by 23.43% from the previous year and was better than the previous year. The net premium earlier decreased with a devastating rate but by the year 2014-15 it took a u-turn and took a positive growth path.

Table 4 : Number of policies

Financial year	Number of policies	AGR %
2005-06	8,38,242	-
2006-07	19,60,034	133.83
2007-08	29,13,606	48.65
2008-09	26,38,238	-9.45
2009-10	17,61,870	-33.21
2010-11	13,50,724	-23.34
2011-12	10,29,068	-23.81
2012-13	9,60,178	-6.69
2013-14	7,78,911	-18.88
2014-15	6,39,137	-17.95

Source: Computed from ICICI Prudential Life Insurance Annual Reports, various issues.

AGR –Annual Growth Rate

During the period under study the number of policies issued by ICICI declined drastically. In 2005-06 the number of policies was 8,38,242; it then increased to 19,60,034 in 2006-07 at the rate of 133.83%, highest in the study period. In the succeeding year the number of policies increased but with a declining rate. There was a fall of -23.34% from 2009-10 to 2010-11, and then it fell at the rate of -23.81% in the next year and stood at 10,29,068. In the next year the number of policies declined to 9,60,178 with a rate of -6.69%. The rate of decline was less than the previous year but again in the next two years the rate was much more and by the end of 2014-15 the number of policies issued by ICICI was only 6,39,137 which declined by -17.95% from the previous year.

SECTION II

This section evaluates the performance of ICICI Prudential Life Insurance Company Ltd. using the CAMEL Model. Here six ratios have been calculated from 2005 to 2014 under each category. The table below shows the calculated ratios in percentages:

Capital to Total Assets Ratio: Capital is the base of the company. It is like a security cover for the insured. Higher the ratio higher the efficiency of the firm. It is also indicative of the solvency position of the firm. From the above table, it could be seen that this ratio was 14.02% in 2005-06 which declined to 13.40% to 13.32% in the next two succeeding years. During 2008-09 it again went up to 14.56% but declined significantly to 8.43% in 2009-10. However the ratio had been declining since then and came down to

6.27% in 2013-14. Thus it would be said that the company was not able to maintain its capital base in proportion to their total assets which shows its weak position.

Equities to Total Assets: This ratio is treated as an indicator of sound financial position from long-term point of view because it means that large proportion of total assets is provided by equity and hence the firm is less dependent on external sources of finance. On the contrary, a lower ratio is a danger signal for long term lenders as it indicates a lower margin of safety available to them. The lower the ratio, the less secured are the long term loans and they face the risk of losing their money. From the above table, one could see that the ratio had declined significantly from 13.75% in 2005-06 to 1.80% in 2013-14. This decrease shows the weak position of the company which was not able to fund their equities out of their total assets.

Net Premium to Gross Premium: This ratio reveals the risk retention position of the company meaning thereby that how much the company is retaining its gross premium with itself in order to face the risk of payment. The higher ratio means that the company is itself retaining the premium amount and relying less on Reinsurance Company. It is also indicative of the fact that if the ratio is lower, then the company is relying more on the reinsurance company for tackling their risk for the payment to be made to the customer. However in this case one should be sure about the financial position of the reinsurance company. From the above compilation in the table, the net premium to gross premium ratio in 2005-06 was 99.84% which declined to 99.80% in the next year. If we see the above

Table 5

CAMEL	C	A	Ra	M	E	L
Category	Capital adequacy	Asset quality	Reinsurance and actuarial issues	Management soundness	Earnings and profitability	Liquidity
Ratio Financial Year	Capital to Total Assets	Equities to Total Assets	Net Premium to Gross Premium	Gross Premium to No. of Agents	Operating Expenses to Net Premium	Liquid Assets to Current Liabilities
2005-06	14.02	13.75	99.84	588.62	17.01	40.33
2006-07	13.40	8.36	99.80	337.47	19.29	45.04
2007-08	13.32	4.95	99.82	442.59	21.57	34.08
2008-09	14.56	4.35	99.75	512.00	17.88	28.47
2009-10	8.43	2.52	99.68	683.55	15.59	19.07
2010-11	7.11	2.12	99.64	939.00	12.28	20.72
2011-12	7.09	2.05	99.33	1009.49	14.41	16.00
2012-13	7.01	1.95	99.11	917.49	15.19	16.10
2013-14	6.27	1.80	98.83	723.67	13.16	9.81

Source: Computed from ICICI Prudential Life Insurance Annual Reports, various issues.

range of ratio, it could be said that the company was consistent in maintaining its risk retention ratio and relied less on the reinsurance company, it was confident of itself about its financial position wherein it would be able to pay their customers.

Gross Premium to No. of Agents: This is indicative of the efficiency of the agents of the company who are given the task of premium collection. Higher amount means that the company has taken pains in training their agents in collection of the gross premium. From the table the result of this ratio was quite mixed. It was 588.62% in 2005-06 which declined to 337.47% in 2006-07 but again increased in further years to 512% to 939% to 1009.49%. Year 2012-13 saw a decline in the ratio that continued in 2013-14 also and it came down to 723.67%. The lowest ratio in 2006-07 was the result of decrease in the company's total number of agents from the previous year beside the increase in the gross premium collection. Similarly the fall in further years also seemed to have the same reason of decrease in the total number of agents. Hence, it was necessary for the company to employ more number of agents in order to increase the company's efficiency in premium collection.

Operating Expenses to Net Premium: This ratio means that how much the company is spending out of the net premium earned or how much the company makes expenditure to earn net premium. It measures the effectiveness of the company in performing its activities. Higher ratio means that the company is spending more than it is earning and the profitability of the company is being affected. From the above table, the company's operating expenses to net premium ratio was not consistent. It was 17.01% in 2005-06 which increased to 19.29 % in 2006-07 and then again to 21.57% in 2007-08. However the company improved its position and the ratio declined to 12.28% in 2010-11. In the succeeding years it increased to 13.26% in the year 2013-14 and was able to somehow improve its position from the last two previous years.

Liquid Assets to Current Liabilities: Liquidity indicates the company's ability to meet its short term liabilities on time. Here liquid assets mean those assets which may yield cash on a very short term notice that is quickly. The higher the ratio the better it is considered because it is indicative of how much liquid assets it has to meet its current liabilities. This is a better financial indicator than the other liquidity ratios. Here, the liquidity ratio of the company stood at 40.33% in the year 2005-06 which increased to 45.04% in the next year which signaled a good sign of

performance. However the next year saw a huge decline and it came down to 34.08%. This meant that the company reduced its liquid assets base. Although they maintained their position to meet their current liabilities but since then it had been declining its proportion of liquid assets to its current liabilities and this finally came down to just 9.81% in the year 2013-14. From being 45% to just 9%, the difference has been widening between the assets and liabilities which is not a good sign and it might hamper the growth of the company in the long run.

TESTING OF HYPOTHESES AND INTERPRETATION

The hypotheses have been tested using the one sample t-test. The above calculated ratios have been tested to know the significant difference in the performance of ICICI Prudential over the study period with respect to CAMEL parameters. The table below shows the results:

INTERPRETATION

- $H_{0(1)}$: The calculated statistical values shown in the table with respect to capital to total assets ratio indicates the t-value 8.535 and its p-value 0.000 which is less than 0.05, hence null hypothesis is rejected. This means that there is significant difference in the performance of the company over the study period in terms of capital adequacy.
- $H_{0(2)}$: The statistical table with respect to equities to total assets ratio indicates the t-value as 3.462 and its p-value 0.009 which is less than 0.05, hence $H_{0(2)}$ is not accepted. This means that there is significant difference in the performance of the company over the study period in terms of asset quality.
- $H_{0(3)}$: Pertaining to the third hypothesis related to testing the significance of the difference in the net premium to gross premium ratio, statistical table with respect to this indicates the t-value 827.213 and its p-value 0.000 which is less than 0.05, hence, this null hypothesis is also rejected. Meaning thereby that there is significant difference in the performance of the company over the study period in terms of reinsurance and actuarial issues.
- $H_{0(4)}$: Again, the fourth hypothesis is not accepted as the statistical table with respect to gross premium to no. of agents' ratio indicates the t-value 8.706 and its p-value 0.000 which is less than 0.05, hence, it is also rejected. Thus implying that there is significant difference in the performance of the company over

Table 6

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Capital Adequacy	9	.101344	.0356216	.0118739
Asset Quality	9	.046500	.0402903	.0134301
Reinsurance and Actuarial Issues	9	.995333	.0036097	.0012032
Management Soundness	9	6.837644	2.3561168	.7853723
Earnings and Profitability	9	.162644	.0297973	.0099324
Liquidity	9	.255133	.1210968	.0403656

Table 7

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed) (p value)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Capital Adequacy	8.535	8	.000	.1013444	.073963	.128726
Asset Quality	3.462	8	.009	.0465000	.015530	.077470
Reinsurance and Actuarial Issues	827.213	8	.000	.9953333	.992559	.998108
Management Soundness	8.706	8	.000	6.8376444	5.026573	8.648716
Earnings and Profitability	16.375	8	.000	.1626444	.139740	.185549
Liquidity	6.321	8	.000	.2551333	.162050	.348217

the study period in terms of management soundness.

- $H_{0(5)}$: The statistical table with respect to operating expenses to net premium ratio indicates the t-value 16.375 and its p-value 0.000 which is less than 0.05, hence, $H_{0(5)}$ is rejected. This means that there is significant difference in the performance of the company over the study period in terms of earnings and profitability.
- $H_{0(6)}$: The statistical table with respect to liquid assets to current liabilities ratio indicates the t-value 6.321 and its p-value 0.000 which is less than 0.05, hence, it is also not accepted. This implies that there is significant difference in the performance of the company over the study period in terms of liquidity.

CONCLUSION

From the above discussion, it can be concluded that the performance of the company has been satisfactory at some points and quite good at others. From the above tables it can be concluded that although the number of branches has been declining with the number of policies issued, the amount of net profits has been increasing which is a good sign of growth. Reducing its branches did not lead to fall in its business growth yet through the concentration of business at only certain places lead to increment in the

amount of net profits. The financial year 2014-15 has seen almost a positive growth in net premium collection with a good rate of increase than the previous years. The CAMEL Model revealed that the company is not maintaining its capital base in proportion to their total assets which is the key indicator of financial status of a company. The t-test results for the same ratio show that there was significant difference in the performance of the company. Similarly it is necessary for the company to employ agents to increase their gross premium income. In terms of risk handling the company is playing well enough and relying less on the reinsurance company. The asset quality and earnings and profitability are the areas where the company has to pay attention towards and it need to strengthen its equity capital in proportion to its total assets in order to improve its goodwill. It also requires reducing its operating expenses so that the earnings are retained to be used for the growth of the company. ICICI Prudential Life Insurance Company Ltd. being the leading company among the private life insurance sector needs to build its capital base to remain at its position in the long term. To retain its goodwill with their customer it need to continuously work upon improving its efficiency of their management to acquire big market share in the insurance market. Similarly, the company should continue to maintain their liquid assets base to meet their current liabilities which saw a declining trend which is not a good sign.

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Empirical Evidences on Weak Form Stock Market Efficiency: American Experience

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ABSTRACT

For testing the weak form efficiency five American country indices has been used. For this purpose Run test and Autocorrelation test are used. Run test clearly supported the all country indices are not independent behavior. Run test has inherent weakness as only sign are conceded not how much amount of increase or decrease. The coefficients are obtained for 1-16 time lags to examine results for varying periodicity. Serial correlation coefficient statistics clearly shows the all countries are not in weak form efficiency. It indicates that all countries are significantly auto correlated in different study period.

INTRODUCTION

In an efficient market, a set of information is fully and immediately reflected in market prices so that no investor is able to make excess profits based on any existing information. An efficient market is one where market price is an unbiased estimate of the true value of investment. All it requires is that errors in the market price be unbiased, i.e., prices can be greater than or less than true value, as long as these deviations are random. The fact that the deviation from true value are random implies that there is an equal chance that stocks are under or over valued at any point of time, and that these deviations are uncorrelated with any observable variable. If the deviations of market prices from true values are random, it follows that no group of investors should be able to consistently earn excess return using any investment strategy. Inefficient market on the other hand offers opportunities for abnormal return to the investors. In such markets, stock which had outperformed the market in the past should continue to outperform the market in the future. Similarly, stock that has done poorly should continue to perform poorly. **Eugene Fama** (1965) noted that markets could be efficient at three levels based on what information was reflected in prices. A market would be described as being weak-form efficient if it is impossible to make abnormal profits by using past prices to formulate buying and selling decisions. Similarly, a market would be described as being semi strong-form efficient if it is impossible to make abnormal profits by using publicly available information to formulate buying and selling decisions. Last, a market would be described as being strong-form efficient if it is impossible to make abnormal profits by using any information whatsoever to make buying and selling decisions. A large majority of studies favor prevalence of weak form stock market efficiency. They observe that prices in the Indian stock market do not follow random walk model. They support the market efficiency proposition in its weak form both in India and abroad. **Bodla** (2005) has tested the weak form of efficiency with two tests, namely the runs test and serial correlation test using daily data for three year period commencing January 2001 through December 2003. The sample size consisted of 47 scrips of S&P CNX of nifty. In order to test the null hypothesis that share prices follow the random walk behavior, the random walk model has been applied in the study. This is a suitable data transformation procedure, which is used to make the original series stationary. The results of the runs

Key words

Net Premium, Gross premium, Capital, Total Assets, Operating Expenses.

test have given a clear –cut inking of the existence of weak form market efficiency in the Indian securities market. Similarly, the serial correlation analysis based on its coefficients confirms the weak form hypothesis of efficient market. This finding, thus, reduces the probability of continuously making extra profit by forecasting the security prices. **Mahapatra and Biswasroy (2007)** are an attempt in this direction. The study is based on weekend share price data of BSE 30 scrip’s covering a time period of two years i.e. from 1st April 2000 to 31st march 2002. Rank correlation analysis has been extensively used in the study to examine the rank of performance of the above 30 stocks at different time intervals. They reveals that the Indian stock market is more efficient in the weak form in the longer run but inefficient in the short run. **Ramesh, Kiran and Renuka (2008)** have made an attempt to study documents extensive on price behavior in the Indian stock markets. One of the striking features of the results is that runs analysis too exuberate weak form efficiency further and the instances of return drift noted earlier have disappeared. On the whole, the results signify that trading strategies based on historic prices cannot be relied for abnormal gains consistently, except when these coincide with underlying drifts in the stock price movements. **Satish and Sonal (2009)** have analyzed the weak form of efficiency and the efficient market hypothesis on Indian stock market in the form of random walk, during the period of 2007-08 based on closing prices and daily returns on the Indian stock market three representative indices: S&P CNX 500, CNX 100 and BSE 200. Serial correlation and run test support the Random Walk theory and market efficiency hypothesis. Some studies deny its existence to keep the academic debate alive on the subject. **O.P and Vandana (1997)** have studied the weak-form efficiency in Indian stock market during a period July 1988 to Jan 1996. The results of autocorrelation analysis as well as run analysis carried out in respect of each of the fifty shares included in the sample were not supportive of the random walk hypotheses. Some of the observed efficient were larger than those obtained in other studies. Thus the results reported here do not lend support to the view that the Indian stock market is weak form efficiency in pricing share where market efficiency is understood as generating security prices which fully reflect information contained in their historical records. This study has aimed at re-examining the weak form efficiency proposition. In the previous studies Run and auto correlation test have been used but more emphasis is laid on Run test. But in present study more preference is given to Autocorrelation test because this test considered sign as well as absolute change.

HYPOTHESES

In order to examine market efficiency in weak form, historical sequences of stock prices are studied for independence and randomness to test the following null hypothesis:

H₀. Successive stock price movement are independent of past stock prices.

H_A. Stock price movement are identical to that of random numbers.

DATA

In order to examine the validity of null hypothesis, daily price data for a sample of five American county indices are compiled for Eight year. Data used in this study are obtained from yahoo finance website.

METHODOLOGY

To test independence and randomness of stock prices, **Run test** has been used. The number of runs is computed as a sequence of the price changes of the same sign. For testing the significance of the difference between observed and expected number of runs, standardized normal variate **Z** has been used. Since the alternative hypothesis says nothing about the direction of the deviation from a random series, a two -tailed test is applied. Accordingly, null hypothesis will be rejected at five per cent level of significance if the observed value of **Z** is >1.96. Expected numbers of runs of all types are computed by using the method:

$$M = \frac{2(n_1n_2 + n_1n_3 + n_2n_3)}{n_1n_2n_3} + 1$$

Where

M = Expected number of runs;

n₁ = Number of Postive Signs

n₂ = Number of Negative Signs and

n₃ = Number of zeros.

Wherein, standard error (S.E.) is given as:

$$\sigma = \left\{ \frac{[2(n_1n_2 + n_1n_3 + n_2n_3)]}{(n_1 + n_2 + n_3)^2 - (n_1 + n_2 + n_3 + 1)} - \frac{2(n_1n_2 + n_1n_3 + n_2n_3 + 6n_1n_2n_3)}{(n_1 + n_2 + n_3)(n_1 + n_2 + n_3 - 1)} \right\} \frac{1}{2}$$

The difference between the actual and expected number of runs is expressed by a standard normal Z variate as:

$$Z = [R - M] / \text{S.E.}$$

Adjusted Z variate is as follows:

$$Z = [(R + 0.5 - M) / \text{S.E.}]$$

where

R = Actual number of runs;

M = Expected number of runs; and

SE = Standard Error

In run test, there is one limitation that is only sign is considered but not the absolute change. In order to overcome this limitation autocorrelation test is used in which raw values and direction are considered. Hence the inferences are also drawn through autocorrelation. Serial correlation is a measure of relationship between a random variable in time (P_t) and its value (P_{t-n}) periods earlier. It indicates whether price changes at time (t) are influenced by the price changes occurring ($t-n$) periods earlier. In order to hold weak form stock market efficiency, observed serial correlation should be statistically insignificant. Serial correlation coefficients are computed for a 1-16 periods lag(s). If the autocorrelations are close to zero or insignificant at a given significant level, the price changes are said to be serially independent. A significant positive correlation indicates the presence of a trend while the negative correlated depicts the existence of random reversals in the stock prices. The serial correlation coefficient is estimated by:

$$\gamma_k = \frac{C_k}{C_0}$$

$$C_k = \frac{1}{n} \sum_{t=1}^{n-k} (P_t - \bar{P})(P_{t+k} - \bar{P});$$

$$K = 0, 1, 2, \dots, n;$$

$$\bar{P} = \frac{1}{n} \sum_{t=1}^n P_t \text{ is mean of the whole series}$$

C_0 is variance of P_t ; and

Statistical testing of the serial correlation coefficient requires the standard error of estimated coefficient, which is explained below:

$$Z = r_k \sqrt{n - k}$$

RESULTS

The results of run test are presented in table- I in which runs are obtained from mean, median and mode. It can be seen that majority of statistics are significant at one and five per cent level. There are few statistics which are insignificant. It is curious to note that similar tendency prevailed even when the runs are obtained through median and mean. Results are different when runs are obtained from mode. The outcome does not support randomness in the stock prices because in all American country indices Z value are found to be significant. It reveals that weak form efficiency pattern does not exist in American market.

Results of correlation coefficient of price changes are also used to examine the validity of null hypothesis to test the independence of successive stock prices. The coefficients are obtained for 1-16 time lags to examine results for varying periodicity. A significant interdependence in stock returns invalidates weak form market efficiency. Autocorrelation obtained for stock returns for ten country indices are tabulated in tables- II to IX for varied time lags.

It can be seen from tables II to IX that all American country indices correlation coefficient found to be significant at five percent and one percent level for up to 16 days lags. There are few cases, where correlation coefficients are insignificant after 5 or 6 day lag. Thus, the result of autocorrelation test of price changes in most of the cases clearly supports the not applicability of random walk model in order to describe share price behaviors in American stock markets. Thus, the overall significance of autocorrelation coefficient points to the efficiency of some markets is not in its weak form. It reveals that weak form efficiency does not exist in American stock market. Both tests present the same result. One of the features of the result based on autocorrelation analysis is that this analysis overcomes the limitations of run test.

CONCLUSIONS

Thus, in most of cases the result of Run test of price changes does not supports the randomness in the stock prices because all countries Z value are found to be significant. In run test, there is one limitation that is only sign is considered but not the absolute change. In order to

overcome this limitation autocorrelation test is used in which raw value and sign are considered. Serial correlation coefficient statistics clearly indicates that weak form efficiency does not exist in all American country indices. On comparing the present study with the previous studies, it has been found that there is variation in the results of various studies. Some studies totally states that there is existence of weak form efficiency and some studies totally opposes it. The present study shows no countries shows weak form efficiency. Investor and speculator can take the advantages with the help of technical analysis, because there are autocorrelation presents in American markets.

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Table 1 : Run Test Statics

YEAR	NAME OF COUNTRY INDICES	500 Index	Bovespa	IPC	MerVal	S&P TSX Composite	500 Index	Bovespa	IPC	MerVal	S&P TSX Composite	500 Index	Bovespa	IPC	MerVal	S&P TSX Composite
		MEDIUM					MEAN					MODE				
First	Test Value	0.000	0.002	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.000	0.013	0.031	0.023	0.038	0.013
	Number of Runs	103	107	103	98	107	103	107	103	100	103	3	3	3	3	3
	Z	-2.915	-2.112	-3.087	-3.492	-1.872	-2.915	-2.074	-2.960	-3.233	-2.370	0.090	0.091	0.089	0.090	0.091
	Sig. (2-tailed)	0.004	0.035	0.002	0.000	0.061	0.004	0.038	0.003	0.001	0.018	0.928	0.928	0.929	0.928	0.927
Second	Test Value	0.000	0.002	0.003	0.002	0.001	0.000	0.001	0.002	0.001	0.001	0.014	0.031	0.021	0.030	0.018
	Number of Runs	112	110	112	110	104	112	108	112	106	104	3	3	3	3	3
	Z	-2.012	-2.146	-2.246	-2.321	-1.141	-2.011	-2.385	-2.192	-2.799	-1.127	0.089	0.089	0.088	0.089	0.095
	Sig. (2-tailed)	0.044	0.032	0.025	0.020	0.254	0.044	0.017	0.028	0.005	0.260	0.929	0.929	0.930	0.929	0.924
Third	Test Value	0.000	0.001	0.002	0.002	0.001	0.000	0.001	0.002	0.001	0.000	0.015	0.036	0.042	0.034	0.026
	Number of Runs	110	103	101	104	106	106	103	97	111	104	3	3	3	3	3
	Z	-2.087	-2.683	-3.169	-2.730	-2.418	-2.583	-2.670	-3.563	-1.760	-2.651	0.090	0.091	0.090	0.090	0.090
	Sig. (2-tailed)	0.037	0.007	0.002	0.006	0.016	0.010	0.008	0.000	0.078	0.008	0.929	0.928	0.928	0.928	0.928
fourth	Test Value	-0.001	0.002	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.030	0.032	0.046	0.031	0.068
	Number of Runs	99	105	117	98	103	103	101	117	105	105	3	3	3	3	3
	Z	-3.535	-2.309	-1.079	-3.265	-2.800	-3.017	-2.792	-1.077	-2.304	-2.514	0.089	0.091	0.090	0.091	0.090
	Sig. (2-tailed)	0.000	0.021	0.280	0.001	0.005	0.003	0.005	0.281	0.021	0.012	0.929	0.928	0.928	0.928	0.928
Fifth	Test Value	-0.002	-0.001	-0.002	-0.002	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	0.078	0.096	0.073	0.000	0.069
	Number of Runs	109	105	107	95	99	107	103	105	93	95	3	3	3	87	3
	Z	-2.389	-2.777	-2.641	-3.984	-3.535	-2.627	-3.027	-2.885	-4.196	-4.021	0.089	0.089	0.089	-4.904	0.089
	Sig. (2-tailed)	0.017	0.005	0.008	0.000	0.000	0.009	0.002	0.004	0.000	0.000	0.929	0.929	0.929	0.000	0.929
sixth	Test Value	0.002	0.002	0.003	0.004	0.002	0.002	0.002	0.002	0.003	0.001	0.039	0.048	0.036	0.038	0.029
	Number of Runs	117	97	111	95	95	113	97	113	97	95	2	2	2	3	2
	Z	-1.383	-3.563	-2.079	-3.706	-4.094	-1.830	-3.562	-1.790	-3.421	-4.028	-11.225	-11.091	-11.203	0.091	-11.203
	Sig. (2-tailed)	0.167	0.000	0.038	0.000	0.000	0.067	0.000	0.074	0.001	0.000	0.000	0.000	0.000	0.928	0.000
seventh	Test Value	0.002	0.001	0.000	0.003	0.001	0.001	0.000	0.000	0.001	0.001	0.025	0.026	0.026	0.046	0.020
	Number of Runs	113	107	107	95	93	113	101	107	97	91	3	3	3	3	3
	Z	-1.945	-2.408	-2.698	-3.706	-4.127	-1.809	-3.070	-2.698	-3.421	-4.328	0.089	0.090	0.089	0.091	0.090
	Sig. (2-tailed)	0.052	0.016	0.007	0.000	0.000	0.070	0.002	0.007	0.001	0.000	0.929	0.928	0.929	0.928	0.928
Eighth	Test Value	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.000	0.030	0.036	0.027	0.048	0.033
	Number of Runs	100	95	103	93	107	92	95	105	91	103	3	3	3	3	3
	Z	-3.576	-4.040	-3.200	-4.127	-2.466	-4.487	-4.040	-2.944	-4.380	-2.863	0.089	0.089	0.089	0.090	0.090
	Sig. (2-tailed)	0.000	0.000	0.001	0.000	0.014	0.000	0.000	0.003	0.000	0.004	0.929	0.929	0.929	0.928	0.929

Table 2 : Serial Auto correlation Statistic in First Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.32	0.01	-0.06	0	0.07	0.07	-0.01	-0.03	-0.11	-0.07	0.01	0.03	0.06	-0.03	-0.07	-0.08
	Value	25.93	25.95	26.83	26.84	28.17	29.57	29.6	29.79	32.76	33.96	34.01	34.3	35.14	35.34	36.57	38.06
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bovespa	Autocorrelation	0.31	-0.05	-0.08	-0.07	0.05	0.11	0.12	0.05	-0.01	0.07	0.03	0.02	-0.04	-0.12	0.03	0.08
	Value	24.53	25.08	26.63	27.73	28.33	31.11	34.88	35.48	35.49	36.57	36.79	36.94	37.37	41.05	41.22	42.87
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPC	Autocorrelation	0.36	-0.01	-0.05	-0.01	0.01	0.14	0.12	0.01	-0.07	0.04	0.06	0.05	-0.01	-0.09	-0.06	0.03
	Value	33.79	33.83	34.4	34.43	34.45	39.3	42.97	43.01	44.17	44.53	45.52	46.2	46.24	48.3	49.24	49.47
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MerVal	Autocorrelation	0.35	0.07	0.08	-0.01	-0.08	0.04	0.15	0.02	-0.02	0.03	-0.05	-0.03	0.03	0.01	-0.05	-0.02
	Value	31.39	32.73	34.17	34.18	35.84	36.24	42.22	42.29	42.4	42.63	43.25	43.49	43.68	43.72	44.28	44.4
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S&P TSX Composite	Autocorrelation	0.38	-0.01	-0.1	-0.09	-0.03	-0.03	0.03	0.13	0.08	0.07	0.05	0.02	0.08	0	-0.07	-0.04
	Value	37.13	37.15	39.61	41.83	42.06	42.24	42.4	47.01	48.86	50.17	50.82	50.95	52.7	52.7	54.2	54.71
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3 : Serial Auto correlation Statistic in Second Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.28	-0.03	0.02	-0.04	-0.06	-0.08	-0.07	-0.03	-0.06	0.04	0	-0.09	-0.01	0.06	0.11	0.09
	Value	19.48	19.75	19.85	20.32	21.3	22.98	24.1	24.31	25.36	25.79	25.8	27.74	27.75	28.77	32.23	34.54
	P Value	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01
Bovespa	Autocorrelation	0.27	-0.14	-0.11	-0.08	-0.06	-0.04	-0.04	0.04	0.05	0.03	0.05	-0.11	-0.09	0.08	0.04	0.01
	Value	19.09	23.97	27.07	28.83	29.75	30.25	30.62	31.13	31.76	31.92	32.64	35.99	38.05	39.65	40.08	40.09
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPC	Autocorrelation	0.31	-0.05	-0.07	-0.11	-0.02	-0.01	-0.08	-0.07	0.02	0.01	-0.05	-0.07	-0.18	-0.11	0.12	0.17
	Value	24.35	24.88	26.3	29.58	29.64	29.65	31.21	32.42	32.48	32.53	33.12	34.49	43.49	46.98	50.77	58.9
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MerVal	Autocorrelation	0.33	-0.05	-0.01	-0.08	-0.15	-0.03	-0.02	0.05	0.1	0.04	-0.08	-0.06	0	-0.04	-0.07	0.02
	Value	27.83	28.5	28.52	30.05	36.05	36.21	36.28	36.86	39.53	39.96	41.87	42.79	42.8	43.27	44.71	44.85
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S&P TSX Composite	Autocorrelation	0.21	-0.02	0.04	0.02	-0.01	0.05	-0.01	0.01	-0.02	0.06	-0.08	-0.04	-0.03	0.06	-0.06	0
	Value	9.61	9.66	9.98	10.04	10.07	10.63	10.64	10.66	10.78	11.63	12.97	13.38	13.62	14.42	15.14	15.15
	P Value	0	0.01	0.02	0.04	0.07	0.1	0.16	0.22	0.29	0.31	0.3	0.34	0.4	0.42	0.44	0.51

Table 4 : Serial Auto correlation Statistic in Third Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.254	-0.038	-0.027	0.004	-0.149	-0.077	-0.065	-0.101	-0.041	0.172	0.067	-0.035	-0.05	-0.02	-0.077	0.003
	Value	16.327	16.689	16.879	16.884	22.587	24.127	25.229	27.919	28.368	36.141	37.338	37.66	38.332	38.435	40.037	40.04
	P Value	0	0	0.001	0.002	0	0	0.001	0	0.001	0	0	0	0	0	0	0
Bovespa	Autocorrelation	0.257	-0.013	-0.071	-0.017	-0.027	-0.013	-0.084	-0.043	0.098	0.043	-0.089	-0.169	0	-0.063	0.009	-0.04
	Value	16.441	16.486	17.761	17.836	18.025	18.067	19.86	20.326	22.778	23.245	25.306	32.744	32.744	33.8	33.821	34.251
	P Value	0	0	0	0.001	0.003	0.006	0.006	0.009	0.007	0.01	0.008	0.001	0.002	0.002	0.004	0.005
IPC	Autocorrelation	0.329	-0.029	-0.064	-0.058	0.033	0.045	-0.1	-0.106	-0.002	-0.002	0.034	0.063	0.036	-0.03	-0.064	-0.106
	Value	27.392	27.607	28.65	29.518	29.806	30.338	32.918	35.848	35.849	35.85	36.153	37.206	37.554	37.793	38.892	41.924
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0
MerVal	Autocorrelation	0.222	0.09	0.098	0.04	-0.01	-0.06	-0.026	-0.109	-0.005	0.074	-0.089	-0.025	-0.004	-0.001	0.028	-0.005
	Value	12.44	14.476	16.918	17.319	17.345	18.277	18.455	21.515	21.521	22.944	25.03	25.189	25.194	25.194	25.407	25.414
	P Value	0	0.001	0.001	0.002	0.004	0.006	0.01	0.006	0.011	0.011	0.009	0.014	0.022	0.033	0.045	0.063
S&P TSX Composite	Autocorrelation	0.222	-0.037	0.031	0.028	-0.086	-0.033	-0.062	-0.064	0.048	0.099	0.028	-0.138	-0.067	-0.018	-0.023	0.064
	Value	12.326	12.664	12.906	13.11	14.981	15.267	16.245	17.308	17.895	20.434	20.637	25.632	26.822	26.908	27.044	28.126
	P Value	0	0.002	0.005	0.011	0.01	0.018	0.023	0.027	0.036	0.025	0.037	0.012	0.013	0.02	0.028	0.031

Table 5 : Serial Auto correlation Statistic in Fourth Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.2	-0.06	-0.05	-0.04	-0.08	-0.07	-0.03	-0.1	0.05	0.07	0.07	0.06	0.03	-0.04	-0.03	-0.02
	Value	10.18	10.97	11.51	11.93	13.73	14.88	15.1	17.62	18.38	19.85	20.96	21.8	21.98	22.33	22.55	22.6
	P Value	0	0	0.01	0.02	0.02	0.02	0.04	0.02	0.03	0.03	0.03	0.03	0.04	0.06	0.07	0.09
Bovespa	Autocorrelation	0.2	0	-0.02	-0.01	-0.06	-0.12	-0.1	0.05	0.1	0.01	-0.01	-0.04	0.01	0.02	-0.03	-0.04
	Value	9.64	9.64	9.73	9.75	10.52	14.36	16.72	17.24	19.74	19.76	19.8	20.15	20.19	20.3	20.55	20.91
	P Value	0	0.01	0.02	0.05	0.06	0.03	0.02	0.03	0.02	0.03	0.05	0.06	0.09	0.12	0.15	0.18
IPC	Autocorrelation	0.17	-0.08	-0.01	0	-0.14	0	-0.07	-0.03	-0.03	0.1	0.09	0.03	0	0.01	-0.01	-0.11
	Value	6.89	8.41	8.42	8.42	13.39	13.39	14.56	14.81	15.01	17.57	19.69	19.9	19.91	19.91	19.93	23.22
	P Value	0.01	0.02	0.04	0.08	0.02	0.04	0.04	0.06	0.09	0.06	0.05	0.07	0.1	0.13	0.18	0.11
MerVal	Autocorrelation	0.27	-0.01	-0.02	0.02	-0.15	-0.1	0.03	0.1	-0.03	-0.09	-0.01	0.01	-0.02	-0.03	0.04	0.02
	Value	17.56	17.59	17.74	17.88	23.25	25.86	26.08	28.58	28.74	30.69	30.72	30.77	30.91	31.19	31.57	31.63
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01
S&P TSX Composite	Autocorrelation	-0.49	0	-0.01	0.01	-0.01	0	0	0.01	-0.01	0	0.01	-0.01	0	0	0	0
	Value	61.01	61.01	61.04	61.05	61.06	61.06	61.07	61.11	61.15	61.15	61.19	61.21	61.22	61.22	61.22	61.22
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 6 : Serial Auto correlation Statistic in Fifth Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.16	-0.19	0.01	0.08	-0.08	-0.01	-0.02	0.08	0.04	-0.03	-0.06	0.09	-0.08	-0.11	-0.02	0.09
	Value	6.87	15.71	15.74	17.24	18.72	18.75	18.82	20.36	20.72	20.95	21.89	23.86	25.42	28.42	28.56	30.9
	P Value	0.01	0	0	0	0	0.01	0.01	0.01	0.01	0.02	0.03	0.02	0.02	0.01	0.02	0.01
Bovespa	Autocorrelation	0.2	-0.15	-0.13	0.02	0.01	-0.12	0.01	0.04	0.02	-0.04	-0.05	0.06	0.03	-0.02	0.07	0.1
	Value	10.38	16.29	20.29	20.4	20.42	23.94	23.98	24.43	24.53	24.87	25.55	26.61	26.79	26.91	28.19	31
	P Value	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.02	0.02	0.01
IPC	Autocorrelation	0.32	-0.07	-0.07	0.05	0.03	-0.17	-0.11	0.01	0.01	-0.04	-0.04	0.12	0.09	-0.02	-0.01	0.11
	Value	25.89	27.16	28.34	28.92	29.1	36.39	39.33	39.38	39.39	39.91	40.39	44.46	46.67	46.78	46.78	49.93
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MerVal	Autocorrelation	0.28	0.05	0.14	0.18	-0.12	-0.14	0.1	-0.06	-0.11	-0.14	-0.02	-0.04	-0.03	0.01	0.1	0.02
	Value	19.41	20.08	24.98	33.46	37.18	41.91	44.46	45.54	48.74	53.66	53.8	54.23	54.43	54.44	57.05	57.14
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S&P TSX Composite	Autocorrelation	0.14	-0.04	-0.02	0.06	-0.08	-0.07	0.09	0.04	0	-0.04	0.05	-0.05	0	-0.02	0.02	-0.05
	Value	4.66	4.99	5.05	5.87	7.48	8.88	11.15	11.51	11.51	12.03	12.81	13.44	13.44	13.58	13.64	14.2
	P Value	0.03	0.08	0.17	0.21	0.19	0.18	0.13	0.17	0.24	0.28	0.31	0.34	0.41	0.48	0.55	0.58

Table 7 : Serial Auto correlation Statistic in Sixth Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.24	-0.09	-0.05	0.06	0.06	-0.11	-0.13	-0.02	0	-0.01	-0.12	-0.06	0.04	0.01	-0.01	-0.01
	Value	14.57	16.66	17.23	18.09	19.17	22.26	26.51	26.61	26.61	26.64	30.35	31.28	31.66	31.68	31.7	31.74
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01
Bovespa	Autocorrelation	0.27	-0.04	-0.06	-0.03	0.01	-0.07	-0.09	-0.12	0.03	0.01	-0.06	-0.01	-0.01	0.04	0	0
	Value	18.64	18.95	19.86	20.14	20.15	21.38	23.41	26.92	27.18	27.19	28.04	28.06	28.08	28.56	28.56	28.56
	P Value	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.02	0.03
IPC	Autocorrelation	0.35	-0.04	-0.03	-0.03	-0.01	0	-0.08	-0.09	-0.06	-0.1	-0.04	0.04	0.1	0.12	0.06	0
	Value	31.53	31.86	32.03	32.3	32.31	32.31	33.87	35.93	36.82	39.42	39.9	40.26	43.19	47.14	48.19	48.19
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MerVal	Autocorrelation	0.28	-0.04	-0.07	-0.03	-0.06	-0.07	0.02	0.03	0.04	-0.01	0.02	0.05	0.12	0.04	0.02	0
	Value	19.57	19.93	21.24	21.41	22.41	23.58	23.71	23.9	24.29	24.32	24.41	25.12	28.56	28.96	29.06	29.06
	P Value	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.02	0.02
S&P TSX Composite	Autocorrelation	0.29	-0.08	-0.04	-0.06	0.02	-0.09	-0.18	-0.03	0	0.02	-0.01	-0.04	0.02	0.04	-0.03	0.07
	Value	22.06	23.73	24.16	25.23	25.32	27.57	35.62	35.9	35.9	36.06	36.09	36.47	36.56	36.9	37.12	38.4
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 8 : Serial Auto correlation Statistic in Seventh Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.276	-0.039	-0.027	0.018	-0.103	-0.036	0.027	-0.111	-0.058	0.06	0.124	0.029	0.066	-0.059	-0.098	-0.084
	Value	19.619	20.006	20.191	20.274	23.047	23.385	23.583	26.88	27.765	28.73	32.892	33.122	34.291	35.253	37.895	39.847
	P Value	0	0	0	0	0	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Bovespa	Autocorrelation	0.333	-0.018	-0.003	-0.001	-0.071	-0.115	-0.049	0.044	0.102	0.062	0.043	0.069	0.059	-0.063	-0.119	-0.113
	Value	28.107	28.191	28.194	28.194	29.491	32.923	33.547	34.053	36.754	37.766	38.251	39.505	40.429	41.492	45.313	48.74
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPC	Autocorrelation	0.284	-0.042	-0.028	-0.063	-0.147	-0.072	-0.016	-0.049	0.005	0.124	0.114	0.141	0.131	-0.084	-0.142	-0.112
	Value	20.867	21.314	21.518	22.564	28.212	29.566	29.637	30.267	30.273	34.369	37.884	43.239	47.913	49.842	55.358	58.814
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MerVal	Autocorrelation	0.335	-0.008	0.002	-0.063	-0.02	-0.004	0	-0.016	0.047	0.116	0.117	0.043	-0.02	-0.043	-0.047	0
	Value	27.898	27.914	27.914	28.925	29.03	29.035	29.035	29.098	29.661	33.113	36.649	37.139	37.243	37.728	38.299	38.299
	P Value	0	0	0	0	0	0	0	0	0.001	0	0	0	0	0.001	0.001	0.001
S&P TSX Composite	Autocorrelation	0.362	0.033	-0.08	-0.118	-0.143	-0.242	-0.171	-0.079	0.048	0.171	0.135	0.06	0.018	-0.039	-0.096	-0.104
	Value	33.025	33.301	34.94	38.514	43.761	58.838	66.398	68.016	68.618	76.287	81.071	82.032	82.117	82.52	84.983	87.87
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9 : Serial Auto correlation Statistic in Eighth Year

Name of Country Indices	Lag	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
500 Index	Autocorrelation	0.36	-0.04	-0.06	-0.07	-0.11	-0.08	-0.06	0.02	0.03	0.01	0.03	0	0.06	0	-0.01	0.06
	Value	32.88	33.19	34.02	35.38	38.27	39.88	40.78	40.92	41.17	41.2	41.4	41.4	42.46	42.46	42.47	43.51
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bovespa	Autocorrelation	0.36	-0.03	-0.01	0.01	-0.08	-0.07	-0.02	-0.01	-0.03	0.02	0	0.07	0.03	-0.05	0.02	0.02
	Value	32.48	32.72	32.74	32.76	34.34	35.62	35.74	35.76	35.93	36.01	36.01	37.18	37.49	38.09	38.22	38.31
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPC	Autocorrelation	0.31	-0.11	-0.18	-0.09	0.01	0.02	0.02	-0.03	-0.12	-0.07	0.17	0.17	0.03	-0.12	-0.11	-0.04
	Value	24.99	28.2	36.88	39.13	39.13	39.21	39.29	39.47	43.52	44.66	52.39	60.29	60.58	64.65	67.88	68.24
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MerVal	Autocorrelation	0.48	0.08	-0.07	-0.05	-0.08	-0.05	0	0.02	0.01	0.06	0.09	-0.03	-0.18	-0.12	-0.07	-0.05
	Value	57.53	59.14	60.44	61.12	62.68	63.24	63.24	63.33	63.37	64.4	66.28	66.48	75.33	79.3	80.6	81.29
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S&P TSX Composite	Autocorrelation	0.34	-0.05	-0.1	-0.03	-0.12	-0.06	0.01	0.03	-0.05	-0.06	-0.05	-0.04	-0.01	0.05	0.05	-0.08
	Value	29.14	29.69	32.19	32.46	36.27	37.27	37.3	37.54	38.13	39.06	39.77	40.19	40.22	40.83	41.49	43.41
	P Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Inclusive Growth of Rural Uttar Pradesh through Carpet Industry

Sadaf Khan

ABSTRACT

India has been independent for 64 years now, but yet nearly 50 % of its population is poor: hungry, malnourished, uneducated, with shabby clothes, poor housing, cities and towns full of slums. Especially the rural part of Uttar Pradesh is suffering. Here, carpet industry could play a very vital role in the process of social and economic development where it occupies a very dominant role. The importance of the carpet sector is well understood by the government, NGOs and international actors, particularly since it is an important source of income for the rural population, particularly for women, and has a large potential for employment creation and poverty alleviation. Keeping in view the growing concern for the economic issues that India is facing the paper focuses on Carpet Industry of Uttar Pradesh which is 100% export oriented and have an immense potential for reducing poverty, increasing standard of living, providing employment opportunities and hence could help in reducing income inequality in rural areas of Uttar Pradesh. It is a great foreign exchange earner for the country and provides employment to the millions of artisans. The main objective of the paper is to examine the current situation of the carpet Industry of Uttar Pradesh, to study the growth pattern of the Carpet Industry of Uttar Pradesh, to find out the barriers to inclusive growth in carpet industry of U.P. and to suggest the corrective measures for developing rural economy of U.P. through carpet industry. It talks about the new concept of corporate social responsibility in carpet industry.

INTRODUCTION

Carpet industry of Uttar Pradesh is one of the most promising sectors in the state. The area in which the carpet industry is located is in the southeastern corner of Uttar Pradesh, one of the poorest regions of the state. The heart of the Carpet Belt is in the Bhadohi-Mirzapur area and surrounding districts. This belt in Uttar Pradesh produces maximum number of carpets in the country It employs more than 20 lakh rural artisans in Uttar Pradesh. A majority of carpets exported from India come from this region. This belt used to be known as the 'Dollar Belt' till recent times. The total exports of Bhadohi - Mirzapur belt till two years back stood at 18 billion rupees forming major part of India's total carpet exports valued at estimated 22 billion rupees per year. This implies that approximately one percent of the state's labor force works in the carpet industry. The weaving of carpets has now spread to the district of Eastern UP, and to Agra, Jaipur, Gwalior, Amritsar, Kashmir, Elluru (A.P.), covering the North, West, Central and Southern parts of the country, However, the largest number of loom are located in Eastern U.P., which produces about 80 percent of the total volume of carpets exported. The carpet importers comprises of major European countries such as United States of America, Germany, Australia, Austria, Belgium, Brazil, Denmark, France, Italy, Japan, Spain, Netherlands, Norway, Sweden, Switzerland and United Kingdom, etc. The hand-knotted carpets are unmatched with incomparable charm & exquisite beauty, with the result that it has become completely export oriented as more than 95% of the Indian carpets find its way to overseas markets. The carpet Industry of U.P. has become one of the most important foreign exchange earning industry of India. It also secures the great

Key words

Uttar Pradesh, Carpet, Industry, Growth, Inclusive, economy, Rural

& glorious Indian heritage of craft that provides employment to thousands of rural & semi-urban Indians.

Shahjahanpur, Mirzapur, Bhadohi, Khamaria and Agra are main centers for carpet industry in Uttar Pradesh.. The weavers in UP are renowned for their versatility in weaving carpets of any designs especially the ancient Persian ones that are always in great demand. This growth and the spread of the industry can be partly attributed to the caste and village system unique to India. This industry is primarily rural in nature with minimal requirements.

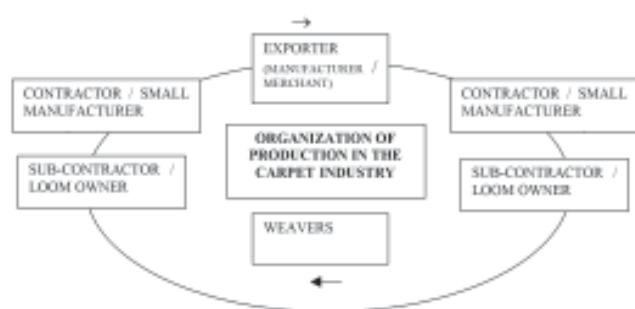
OBJECTIVES OF THE STUDY

- To examine the current situation of the Carpet Industry of Uttar Pradesh.
- To study the growth pattern of the Carpet Industry of Uttar Pradesh.
- To find out the barriers to inclusive growth in carpet industry of U.P.
- To suggest the corrective measures for developing rural economy of U.P. through carpet industry

METHODOLOGY

In order to ensure the quality of the research work, the study has been drawn on both the secondary sources as well as the primary sources. The secondary data has been

Figure 1 : Organisational Chart of Carpet Industry



collected from various secondary sources such as circulars, bulletins and published reports of Carpet Export Promotion Council (CEPC), Indian Institute of Carpet Technology (IICT), All India Carpet Manufacturers’ Association (AICMA) and Ministry of Commerce, Besides, relevant books, journals, articles, periodicals, research papers and websites are also consulted. The primary data comprises of field visits to various weaving centers. Field interviews are done to know other market related

data. The interviews and discussions were done mainly to know the problems of enterprises, weavers, laborers, raw material suppliers, equipment dealers, exporters, and other stake holders of carpet industry.

CARPET INDUSTRY AND INCLUSIVE GROWTH OF UTTAR PRADESH

Inclusive growth by its very definition implies an equitable allocation of resources with benefits incurred to every section of the society. Rapid and sustained poverty reduction requires inclusive growth that allows people to contribute to and benefit from economic growth. Inclusive Growth focuses on economic growth which is a necessary and crucial condition for poverty reduction. It focuses on both the pace and pattern of growth. The carpet industry plays a very major role in rural inclusive growth for the developing economy like India. It provides immense amount of foreign exchange and employment to Uttar Pradesh that helps in poverty reduction and increases the standard of living.

The role of carpet industry in country’s Gross Domestic Product (GDP) has been quite beneficial in economic life of that particular country. The world wide trade of carpets has boosted up the GDP of the countries where it is manufactured because this sector has brought in a huge amount of revenue in the country. It has been emerged as one of the most advantageous industrial sector in the economy. It is a fertile industry and create immense amount of foreign exchange. This industry is almost 100% export oriented therefore a good source of earning of foreign exchange from the hard currency areas. Today the total demands of carpets are increasing at a very high pace. Developing countries like India, China, Iran and Pakistan export 60% world demand of the carpets and contribute immense amount of foreign exchange to their economy.

Table 1 : Showing export, production and employment of carpet industry of Uttar Pradesh

YEARS	Export from U.P. in (Rs. in Crores)	Export from U.P. (U.S.\$ Million)	Production in UP (Rs in Crores)	Production in UP (US\$ Million)	Employment In U.P.
2001-02	1614.19	332.13	1705.29	359.84	2350000
2002-03	1836.93	406.03	1813.18	373.07	2390000
2003-04	1651.88	378.12	1945.85	430.1	2425000
2004-05	1997.76	451.48	1679.35	384.55	2375000
2005-06	2383.2	523.96	2003.33	452.74	2450000
2006-07	2829.64	621.9	2388.65	525.16	2500000
2007-08	2714.04	675.13	2291.07	569.21	2480000
2008-09	2031.55	450.45	1760.67	390.039	2400000
2009-10	1753.73	368.43	1628.46	341.81	1500000
2010-11	1444.56	312	1945.25	425	2000000

This industry is equally important for creating maximum employment in rural and backward areas beside its foreign exchange contribution in building of nation economy. The country with a population backed by skill and inclination towards such craft activity has a strong potential for growth. Engaging in such activity produces gainful employment resulting socio-economic growth. The handmade carpet industry is thus a potential socio-economic growth for any such country and the world at a large. Millions of artisans are already involved and many more millions can be included in the sector, providing opportunities to afford domestic economic development and enhance world trade. It is an unorganized and decentralizes industry which provide directly or indirectly employment to millions of workers. It is a generational craft where skills are passed on from one generation to another. It is the best industry that provides labor employment with little investment. Carpet industry job is mostly done in rural and village areas where the domestic ladies work for weaving the carpets after completing their agriculture, education and domestic work as per his choice. It provides full independence to these ladies to work according to their need and the women folk could easily provide supplement income to the family. The main quality of the employment in this sector is that the industry provides job at their own home, village of the same district or the state,

To some extent, the carpet industry also solves the problem of seasonal unemployment. As already discussed that this industry is mostly based in rural and village areas where agriculture is the main activity. But the agricultural activity cannot be continued all the year round therefore during off seasons the villagers can easily switch over to carpet weaving job and could easily support their family. The industry also reduces the poverty in the economy. It plays an important role in the development and poverty alleviation of remote areas. It is good for poverty stricken countries as meager investment is needed for its commencement and the profit could be earned in the form of foreign exchanges.

The dual benefits provided by the carpet industry to the economy is not only limited in the shape of foreign exchange earnings and employment generation. They are also a symbol of financial security. Over the last few years the carpet has been recognized as one of the prime investment in the art and antiques market. While some carpets are necessary for a comfortable life, others are woven for sale in the bazaars, or kept as a sort of insurance

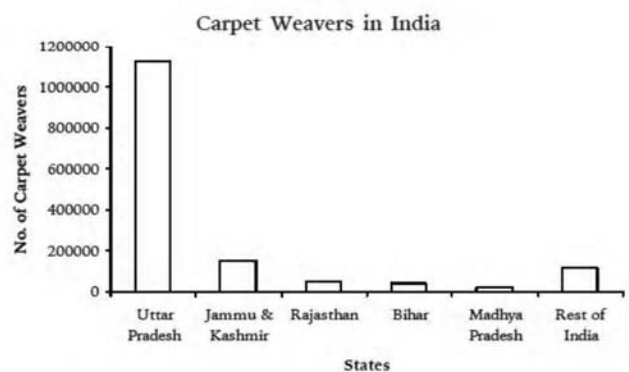
in case of financial hardship In Europe and in the East, studies of investment trends indicate that rugs have been considered serious tangible investment for centuries, yet it is only recently that American have come to share the point of view. In Europe the fascination with oriental rugs reaches back at least eight hundred years. The Spanish, followed by the English, the Italians, and the Russians demonstrated an early interest in collecting rugs. Even today, tribal people do not use banks or saving schemes. Instead they build up stores of carpets which can be sold off to raise capital as specific needs arise. The weavers do not work with the intention of selling immediately. Carpets are usually kept (and used), or rolled aside for at least ten years before it finally becomes necessary to sell them ad in fact they will be worth more after many years of hard services than they were when newly woven.

BARRIERS TO GROWTH IN CARPET INDUSTRY OF UTTAR PRADESH

Paucity of Weavers

Uttar Pradesh artisans and craftsmen have brought in fame and foreign exchange. But now the situation is not the same. The industry is facing a severe labor crunch at the moment and apparently it seems there is no permanent solution to this in near future. There have been abrupt and unpredictable developments in labor market which has caused serious paucity of weavers in the Carpet Industry.

Figure 2



Source: Export Promotion Council for Handicrafts and Council of Handicraft Corporations and Development Commissioner (Government of India).

India is emerging is a future global economic power and with GDP and thousands of Mega projects under construction rural population has other lucrative job opportunities where they can make better earnings. Government of India introduced NAREGA (Empolyment Guarantee Scheme In Rural Areas) and because of this scheme good number of weavers are shifting to the NAREGA work. This has attracted many carpet workers

to the scheme, putting pressure on carpet wages, which unfortunately did not increase with the inflation.

Shortage of Raw Materials

Carpet grade wool is one of the critical inputs is in short supply due to inadequate domestic production. Shortage of carpet grade wool hampers bulk production of carpet for export. As against present requirement of 40 million kgs, wool available from domestic sources is about 25 million kgs. So far the Central and the State Government have played only a marginal role in wool production and development although they have been made responsible to organize and augment production of carpet grade wool. The requirement of wool for carpet industry is estimated as 16 million kg on scoured basis or about 20 million kg of greasy wool. Wool with 36 and above can be used for manufacture of carpets. 7.5 million kg of wool of 54’s, 48’s and 12.6 million kg of 46’s/36’s is available. Therefore, about 20.1 million kg of wool can be used for manufacture of carpet except that a portion of wool is colored (black/brown) and is therefore not suitable for quality carpets. Unfortunately the wool industry depends increasingly on imports and there are little attempts to utilize the domestic production. That further increases the problem in terms of import duty levied by government.

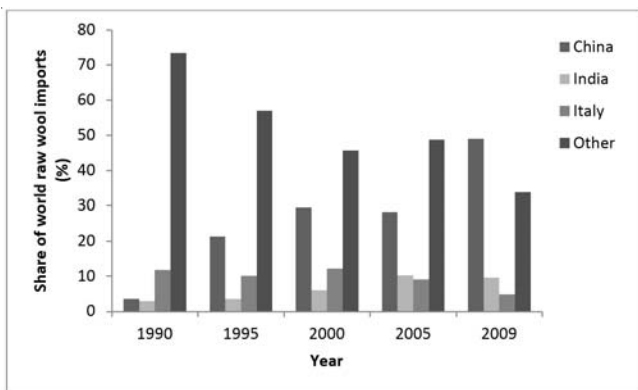


Figure 3. World Raw wool imports (actual weight) 1990-2009: % share of main importer

Soruce : IWTO (2010)

Further, there is acute shortage of the steam coal for carpet industry in Bhadohi district, which is required for dyeing of woolen yarn. If there is decline in the supply of the coal, then the carpet import will suffer resulting in loss of foreign exchange and also employment of rural labor. The most important thing related to the steam coal is that, the wool which is imported from Australia and New Zealand is of white color and it is dyed here itself in different colors according to the fashion demand with the help of heated water which is made available by the help of steam coal.

Inadequate Civic Amenities and Infra Structural Facilities

As a manufacturing country, the industry requires much needed infrastructure and in absence of which the Indian Carpet industry is being diverted to other carpet producing countries of the world. It is very pathetic to see the very bad condition of infrastructure in Bhadohi Carpet belt, which is one of the largest Carpet producing areas of India. Bhadohi can easily claim to be the home of some of the richest carpet exporters in India. Despite this, there are no proper roadways to and from the city. The road leading to Bhadohi from the state highway is rickety and gives the traveller a nice bumpy ride into the carpet city of India. Electricity supply is on an average for 6-7 hours on a day, though most of the time low voltage prevails. The State Government is not taking any active role in improving the infrastructural facilities in this major export-earning city. Carpet Production needs uninterrupted power supply, and the generators provide this power. One of the exporters engaged in this business for the last 40 years, lamented the misuse of human and financial resources because of the government’s inefficiency in providing uninterrupted power supply to Bhadohi exporter.

Competition from the Carpet Manufacturing Countries

China has been imposing a serious threat to the export of Indian carpets. The main issue is the cheaper prices of Chinese carpets. The China started to make very successfully the hand knotted carpets in high qualities called Cino-Persian designs from 1990 onwards and they superseded the Indian, Iranian and the Pakistani carpets because of their high knotted carpets with cheapest prices. In Pakistan the main reason for the continuous success is the customer preference for the fine knotting, the unchanged comparatively low prices, fine to very fine goods from Pakistan at 25% cheaper than Indian goods and cost only about one-fifth, of fine Persian knotting. Similarly, the Iran economy, which mostly depends on carpets are selling their products cheaper than Indian carpets and because of the name Iranian carpets are lusting very much the Indian carpets. In the month of March 2000, USA one of the second largest buyer of Indian carpets, have withdrawn ban from Iranian carpets resulting very less imports by US customers from India. Many thousands of container of Iranian carpets have been imported by USA during last 6-8 months resulting and affecting Indian carpet industry heavily.

Propaganda against Child Labor

Among all the industries listed as “hazardous” in India for the employment of children, the carpet industry has perhaps attracted most attention at the international level. This has been mainly attributed to intensive campaigning by some children’s rights organizations that highlighted the problem of exploitation of child labors in the carpet industry and sought international support. As a result, the image of the carpet industry suffered a setback and it was felt that the adverse publicity could affect the demand for Indian carpets in the West. . The stagnation seen in carpet exports in the late nineties has been attributed in large part to the issue of child labor. The industry and the Government woke up only after the damage has been done. By that time America and European countries have started imposing ban on the import of carpets from India, Pakistan and Nepal condemning the carpet exporters from these countries and naming them as the exploiters of child labor prevail upon them.

Lack of Government Support

Earlier, the government had a positive attitude towards the carpet industry but now the situation has been changed. The schemes like carpet export incentive schemes, tax concessions now been withdrawn. The government of India was too quick to withdraw Income Tax Exemption granted to export community under section 80 HHC on the pretext of WTO provisions. It has done great damage to the exporter community in general and the exporters of handmade carpets in particular. Further, the Drawback rates for most of the goods except for silk carpets, have been decreased by 10% approximately. New entries have been created for carpets and floor coverings of Jute and Coir with drawback rates of 3.5%. Further, this industry has to face stiff competition from the competing manufacturing countries According to the carpet exporters, CEPC Export Figures do not reflect the true figures of the carpets exported from the country. The export figure provided by the Directorate General of Foreign Trade (DGFT), Kolkata are exaggerated. The carpet industry is under recession for the last two years. But CEPC figure shows no decline.

Recessionary Effect

Since the beginning of this century, the industry entered into recessionary phase. Global economy was badly

affected post 9/11 episode in US and the confidence level of the masses in most of the rug importing countries got badly hurt. However, it took couple of years to overcome the 9/11 phobia and by the time situation improved and people were ready to spend for luxurious items like handmade rugs, there came a subprime crisis in USA 2007, causing collapse of housing industry. This has caused reduced export order in hand and with less order, exporters were compelled to cut down the production and resultantly the weavers were compelled to wind up the looms and migrate to other available job opportunities. With this economic downturn, the consumers in these markets have less disposable income, restricting them to buy expensive Handmade Rugs to their satisfaction.

Table 2 : Showing percentage decline in Hand - Knotted Carpets during Slowdown

Year	Amount in Crores	%age Growth	Amount in US\$ Million	%age Growth
2006-07	3674.86		807.94	
2007-08	3524.73	(-) 4.09%	875.71	(+) 8.39%
2008-09	2708.73	(-)23.15%	600.06	(-) 31.48%
2009-10	2505.33	(-)7.51%	525.87	(-)12.36%

Source-CEPC

Obsolete Technology

Though the industry has witnessed a lot of technological advancement in all spheres of human activity, primitive technology is still prevalent in Indian Carpet Industry. Indian carpet Industry has not invested in new technology for enhancing their productivity and quality. Neither has any institutional support from governmental side been made available to enable the industry in adopting newer technology to compete in new liberalized global economy. The industry is therefore, facing problems related to standardization of dyeing & finishing processes, testing of various parameters of fiber and yarn, for ascertaining their suitability for carpets and other floor coverings, and lack of information about fashion and color trends in various international markets enabling industry to adopt and meet their requirements.

SUGGESTIONS TO OVERCOME THE BARRIERS TO SUSTAINABLE GROWTH

Following are the suggested measures which can be adopted by carpet industry to achieve the sustainable growth:-

- There is an urgent need of culture for technological upgrades in the carpet belt. Because the industry is currently using old/ outdated technology. Emphasis should be given on the R&D activities in terms of raw material, machine development/ modification or process development/ modification.
- To reduce the prevailing labor crunch, skill development programs should run more rapidly by government agencies and exporters should think of welfare of weavers to mitigate the migration. A proper Human Resource Development is needed in the industry that lacked qualified and trained workers.
- . In addition to all of these, SWOT (Strength-Weakness-Opportunity-Threat) analysis of the trade as a whole should be done in Regional/National/ International (competing countries) perspective
- Indian Carpets has to go on innovation to create demand in a slack market and increase pressure on State and Central Governments to provide help and assistance to enable carpet industry to continue providing employments to lakhs of rural artisans involved in the industry and create further employment of both male and female artisans specially belonging to rural sector of the country
- The shortage of raw materials can be overcome if physical raw material bank is created for major carpet belts. Similarly, raw material service centre and creation of knowledge bank can solve the problem. There is also a need of capacity building to manufacturers so that they can deal with high value added carpets.
- There should be proper information on export and import of final products covering the details of exporters and importers, product mix and price for the particular product mix. Detailed information should be gathered on prevailing regional and national cost structures covering India and competing countries.
- It is essential to create conditions where Indian carpet exporters are cost competitive with their counterparts in other countries by improving the infrastructure in carpet weaving belt. Well constructed roads are badly needed in the Carpet j© Belt. Gateways like railway station and commercial places should be properly linked.

Regular power and electricity should be provided for smooth functioning of looms.

- To rescue the Indian carpet industry from the ongoing crisis, the government needs to undertake important initiatives on a long term basis at least till carpet industries make full recovery and back on track. Financial institution can help by providing adequate finances to carpet industries for technology up gradation and put low interest rate on export finance in order to help in revive the carpet industry.
- Labor laws should be made industry friendly to encourage carpet weavers to achieve economies of scale in production.

CONCLUSION

India has been independent for 64 years now, but yet nearly 50 % of its population is poor : hungry, malnourished , uneducated, with shabby clothes, poor housing , cities and towns full of slums. Here, carpet industry could play a very vital role in the process of economic development. All over the world the Government has also realized that the carpet industry is a promising industry and further development could be done in the field. The importance of the carpet sector is well understood by the government, NGOs and international actors, particularly since it is an important source of income for the rural population, particularly for women, and has a large potential for employment creation and poverty alleviation. The government has realized that carpet industry plays a very important role in developing rural economy of Uttar Pradesh. It has shown its commitment to promote the development of carpet sector. It has introduced several sound business-friendly legal framework and policies such as attractive investment, banking and taxation legislation. The customs and tariff system have been simplified in many of the carpet producing countries so that there could be easily inflow and outflow of goods and raw materials.

It is best suitable industry for Indian atmosphere to achieve maximum profit, with a little investment. This craft industry plays major role in solving unemployment problem in the country as the mechanization is very less and the entire process is manual. The wage component is very high, to the tune of 40% of the manufacturing cost, which is very rare in other industry. It provides employment to over 25 million mainly in the cottage sector of rural India. . In recent years handmade carpet sector

has shown great improvement in relevant areas such as competitiveness, capacities, delivery time and standardization. If due attention and care is given to carpet industry of U.P., there is an immense potential for reducing poverty, increasing standard of living, providing employment opportunities and hence could help in reducing income inequality in rural areas of Uttar Pradesh.

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Exploring Factors Affecting Consumer's Perception towards Green Electrical Cooling Appliances

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ABSTRACT

As the consumers now days are becoming more concerned with environment and seeking green electrical products because the main cause of environment degradation is increasing population, pollution emitting from electronic appliances, high energy consumption and our consumption pattern. This paper aims at exploring the factors affecting consumer's perception towards two green electrical cooling appliances -air conditioners & refrigerators in Punjab that ultimately leads in framing green purchase intention of the consumers. 126 respondents from three districts namely - Amritsar, Ludhiana and Gurdaspur were chosen on the basis of non probability convenience sampling method. Using a 10 statements questionnaire, the data were collected from 126 respondents in Punjab. Exploratory factor analysis, Confirmatory Factor analysis and Structural equation modelling techniques were employed. Data was analysed using IBM SPSS 22 and AMOS 18. Consumer's environmental concern is the most significant factor affecting green purchase intention whereas environmental attitude is not the significant factor affecting green purchase intention. The findings of this study will provide good insights for marketers, manufacturers, managers and policy makers in understanding the profile of green consumer in Punjab and further suggests the need of formulating and implementing strategies to encourage purchasing of green electrical cooling appliances in Punjab. Furthermore, the study offers a profile of green consumers.

INTRODUCTION

As green marketing activities are flourishing in many countries, these activities played a significant role in enlarging consumer knowledge regarding green electrical cooling appliances too and in switching consumers from over conventional electrical cooling appliances to green ones. (Delafrooz N et.al. 2014). Establishing long-term relationship with customers, retaining them by providing good quality products at reasonable prices so that they derive satisfaction are always the principal objectives of the firm to earn profits and to sustain them in the competitive market efficiently. But in today's scenario, not just good quality products rather good quality eco-friendly products are provided by the marketers because consumers are much aware and choosy. But the Institute for Consumer Research in The Hague showed that even those who declare their concern for the environment may not choose green electrical appliances for e.g. five star rated air-conditioner or refrigerator. Although the introduction of green products has waned since 1993, there are still product categories in which there has been a 30- fold increase in new green products. When the marketplace is flooded in this way, it is bound to result in some confusion, frustration and inaction on the part of consumers. This inaction and confusion show a gap between those who want to shop green but do not want to pay premium prices for green electrical appliances because they lack trust of the environmental claims by the companies. Though indicators like star rating have been used as influencing factor on consumers' decision during purchase of eco-friendly electrical cooling appliance and may be they are willing to buy 2 star or 3 star electrical cooling appliance but that is not because of their high concern for environmental protection but because of personal benefits of health or energy saving they are going to derive later from the same. (Banerjee & Banerjee, 2015). With an increase in the social and political pressures, many firms adopted green marketing strategies and exploited

Key words

Consumer Perception,
Green marketing,
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Green Consumer, Eco-
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Cooling Appliances.

these environmental issues as a source of competitive advantage. (Chen & Chai, 2010). Industrial Ecology and design for environment are the two concepts which are related to using nature as a model for industrial systems in order to create eco-friendly electrical appliances. Energy and resources are conserved at every level, and then recycled into new ideas and products. Abundant of research has been conducted on consumer intention and behaviour towards green products in the initiation of 1970s. Several variables including psychographic constructs like values, affect, beliefs/knowledge, needs & motivations, attitudes have been advocated as an important determinants of environment friendly behaviour and demographics variables like age, gender, occupation, qualification etc. were shown to drive consumer choice in regards to purchasing environmental friendly products which are widely explored in the literature (Bui & Loyola, 2005; Maloney & Ward, 1973; Maloney et.al. 1975). However, their exact relationships with such behaviour are still unclear (R. Y. K. Chan & Yam, 1995) In addition, these antecedents in context of two most usable electrical cooling appliances – air-conditioner and refrigerator in Punjab have yet to be fully explored. To bridge this gap, a literature review related to the factors affecting consumer perception leading to actual buying behaviour and their possible relationships with consumer socio-economic characteristics is first provided. This will form a useful basis for formulating the relevant conceptual model to guide the conduct of the survey subsequently.

This paper is essentially exploratory in nature and the first research study in itself related to survey of consumer perception towards two green electrical cooling appliances i.e. air-conditioner and refrigerator in Punjab. Now, green consumers are adapted to environmental threats in several ways as they became more willing to pay more for eco-friendly products, reckoned environmental issues when shopping (e.g. checking if the electrical cooling appliance is coming under star rating or not), and bought more ecologically compatible products (Laroche et.al. 2001). The perception of consumers and their actual buying behaviour towards 2 home appliances – the refrigerator and the air-conditioner in Punjab has been checked because both of these appliances are seen in households across different income groups. Refrigerators function 24/7 throughout the year. The air-conditioner has limited use during certain months of the year. They are available in varied sizes, varied features and energy saving options. (Banerjee & Banerjee, 2015). The paper begins by providing theoretical

background of the relevant literature. Thereafter the methodology and the results from the quantitative study will be presented. It concludes with a discussion of the results, limitations and directions for future research.

REVIEW OF LITERATURE

In order to get an insight and to gain proper understanding of the topic, a thorough review of the work already done in the relevant field is a must. With this in mind, some of the available literature has been reviewed. The term “green” has been profoundly expounding its wings throughout the world but Indian consumers are still in their blossoming phase of green movement. (Maheshwari, 2014, Nath et.al. 2012,). “Green is the buzzword that is gaining popularity in the contemporary generation. Both the public sector and the private sector undertakings are embarking on the green bandwagon”. (Kumar, Pawan, 2015). While the shift to “green” may appear to be expensive in the short run, it will definitely prove to be beneficial and imperative in the long run. (Sharma, 2011). Though knowledge among Indian consumers regarding environment degradation and ozone layer depletion has been noted in the literature, their awareness and behaviour towards green products, green marketing and further buying behaviour towards eco-friendly products is still beyond the ambit of clear understanding. (Kumar & Ghodeswar, 2015). Consumer buying behaviour is a direct function of environmental concern. As there is an increase in consumer environmental concern, consumer purchasing behaviour towards eco-friendly electrical appliances also increases. (Agyeman, 2014). So there is a positive significant relationship between the duo. Various studies excavated that consumers are now more aware of environment and are concerned about whether the electronic products they use cause any environmental harm or consume more energy or not. (Johri and Sahasakmontri, 1998; Straughan and Roberts, 1999). This awareness is high in the developed countries, but is also witnessing an uptrend even amongst the emerging economies like China, India, Brazil, etc. The fact that the consumers’ needs are changing towards more sustainable electronic products adds on to the importance of green marketing and a response towards these needs leads to green electrical cooling appliances and process innovation. (Ottman, 2006). But contrary perspective also prevails to this assertion in the literature. When the marketplace is flooded with numerous electrical cooling appliances, it is bound to result in some confusion, frustration and inaction on

the part of consumers. This inaction and confusion show a gap between those who want to shop green but do not want to pay premium prices for green electrical appliances because they lack trust of the environmental claims by the companies. They may get successful in selecting the eco-friendly electrical cooling appliance and may be they are willing to buy 2 star or 3 star electrical cooling appliance but that is not because of their high concern for environmental protection but because of personal benefits of health or energy saving they are going to derive later from the same. With an increase in the social and political pressures, many firms adopted green marketing strategies and exploited these environmental issues as a source of competitive advantage. (Chen & Chai, 2010).

Although the number of individuals willing to purchase green electrical cooling appliances has increased in the last few years, there is little evidence to suggest that purchase of such appliances has increased too; despite environmental awareness, concern and positive attitude of customers towards sustainability and green electronics, market share of green appliances remains confined to just 1-3% of the market in totality. (Bray et.al. 2011). This proves that respondents have low knowledge and awareness about the star rated green electrical cooling appliances which does not affect their green purchase intention. One probable reason for this may be that only a basic understanding of ecological and social problems might not be enough to inspire consumers towards adopting sustainable consumption practices. (Arora, A., 2014). The companies need to adopt suitable green marketing strategies for the dissemination of the information to the consumers. These communication strategies are consisted of different types of environmental claims, environmental appeals, and themes, verbal and visual green to persuade consumers to purchase green products. (Chahal & Kaur, 2015).

Thorough understanding of the consequences of using non-green electrical cooling appliances on the health of consumers, their surroundings and on overall environment might prove to be more effective in making the consumer shift towards green electrical cooling appliances. (Joshi & Rahman, 2015). Numerous studies have been done on purchase of energy efficient devices for residential sector in developed economies. Energy efficiency is defined as the "energy service per unit of energy consumption". The 2 products that has been the basis in this research study are the refrigerators and air-conditioners. For air-conditioners, model's efficiency is the

amount of cooling capacity (output) per unit of energy it consumes (input). The measure of energy service for a refrigerator is the volume that has to be cooled. Additionally there is adjustment of volume for extra cooling in the freezer. Star rating, the measure for energy efficient devices, was created in 1992 by Department of Energy and Environmental Protection Agency (EPA) by John S Hoffman in the United States. For Refrigerators and Air-conditioners, standards were revised in 2000, which were again revised in 2010. Defrost is not yet a part of the star rating equations (Energy rating 2014). Few studies have shown their results which (Garg et.al. 2010) indicated that a large scope exists for extreme elevation and penetration of electrical cooling appliances in residential sector until 2010 in India.

According to Teri Environmental Survey, 2013, residents of metropolitan cities in India stated that the government, businesses, academic and research organisations should take the lead, following which consumers/citizens should be aware and proactive. They feel that government policies relating to environment protection and consumer knowledge in different spheres of the country exists, but the common opinion suggests that these policies are either inadequate or not being implemented to meet their desired objectives.

1) **Environmental Concern:** Diamantopoulos et.al, (2003) declared environmental concern as one of the most significant factor in framing green purchase intention of the consumers. Knowledge about green issues, Attitudes towards environmental quality and Environmental sensitive behaviour were the three important dimensions related to environmental concern used in their study in profiling British green consumers. Chan & Lau adopted the scale of Maloney et.al. (1975) considered environmental concern as a uni-dimension provided that the extent of emotional indulgence in the environmental issues by a person measures his degree of concern towards environment.

The greater the intention to buy eco-friendly products, the greater will be the number of consumers with environmental concern. According to them, the concern for the environment can be reflected in daily activities of the consumers. They have also considered the environmental concern variable as the uni-dimension factor according to the study of Chan & Lau (2000) and Aman et.al,

(2012) as these authors have also conceptualised environmental concern is nothing but the emotions and commitment of the consumers towards environmental issues.

Dunlop et.al, (2002) indicates how much aware the people are of environmental problems and how much they support the efforts to solve such problems or their willingness to contribute individually to support the cause show their ultimate concern towards environment.

Core concern about the society and environment can be viewed in individual's efforts to preserve and conserve the same. Fransson & Garling (1999). Various studies emphasize that green purchase intention of the individual towards green products is significantly affected by his environmental concern. Ottman, J.A. (1998), Zimmer et.al. (1994), Balderjahn I. (1988), Roberts & Bacon (1997), Lin & Huang (2012), (Roberts, 1996).

Moreover many researchers have described environmental concern as a trigger factor affecting positively green purchase intention, pro-environmental behaviour and actual buying behaviour of the consumers. It also leads to higher level of environmental consciousness. Miller and Layton, (2001) In the study of Choi and Kim (2005) and Lin & Huang (2012) consumer who were low concerned for the environment were found to be less willing to buy green products whereas the consumers having high concern for the environment were more intent to go for eco-friendly products. Majority of the studies show that there is a direct influence of environmental concern on the green purchase intention of the consumers but still in the studies of Han et.al. (2009) and Hartmann & Apaolaza (2012), relationship between environmental concern and green purchase intention is mediated by consumer attitude. Hence, it has been observed from the literature that environmental concern has a positive significant influence on person's intention to buy green products. On the basis of above literature it can be hypothesized as:

H1: Environmental Concern has significant effect on Green Purchase Intention.

- 2) **Environmental Attitude:** Attitude plays a significant role in consumer behaviour and many

researches have been conducted to understand consumer's attitude toward different products. (Jamal et.al. 2016). According to Schultz and Zelezny (2000), "attitudes of environmental concern are rooted in a person's concept of self and the degree to which an individual perceives him or herself to be an integral part of the natural environment". The quality of the environment depends critically on the level of knowledge, attitudes, values and practices of consumers (Mansaray and Abijoye, 1998). Attitudes are better predictors of pro-environmental behaviour than other variables (Padel and Foster, 2005). These too are the most persistent interpretative factor in predicting consumers' readiness to pay for eco-friendly products (Chyong et.al. 2006). This exploration suggested that eco-friendly behaviour may be featured as morally demanding. Morally obligated consumers have intense feel for the protection of the environment and to make optimum utilisation of limited natural resources. Chen & Chai, (2010). However, Tanner and Kast (2003) found that consumers' green food purchases were not significantly related to moral thinking. Moreover Lee (2008), found that environmental attitude did not significantly predict green purchase intention of young consumers in Hong Kong. According to Hoyer & MacInnis (2004), Attitudes need to be changed in order to twist the behaviour towards environmental practices. Throughout history, numerous studies have directed that there are two types of Attitudes related to eco-friendly behaviour. First and foremost is - Perceived Importance i.e. How much a consumer feels himself attached to the environment and how much he expresses his concern towards the environment. Second one is - Inconvenience i.e, what type of problems and difficulties are faced by the consumers when they adopt eco-friendly practices. (Laroche, et.al. 2001). As referred by Baker & Ozaki, 2008 Ajzen Theory of Planned Behaviour stated that beliefs and values of consumers frame their attitude which is translated into intention & actual behaviour. On the basis of above literature it can be hypothesized as:

H2: Environmental Attitude has significant effect on Green Purchase Intention.

- 3) **Green Purchase Intention:** Intention is a degree of the extent of performing a specific behaviour by a person. (Ajzen, 1991; Fishbein and Ajzen, 1975).

According to Theory of Planned Behaviour intention is viewed as the closest determinant of behavior. There is a direct link between buying intention and actual buying (Ajzen, 1985; Kalafatis et.al. 1999 & Usmani et.al. 2015). Consumer intention has been used as a proxy for actual behaviour (Follows & Jobber, 1999). Kotler and Armstrong (2001) argued that, in the evaluation stage, the consumer ranks brands and forms as part of the considerations in the purchase intentions process. However, two factors can play the role of mediators between purchase intention and purchase decision. The first factor is the attitude of others and the second factor is unexpected situational factors. For example; the consumer may form a purchase intention based on factors such as expected income, expected price, and expected product benefits (Iman & Zainuddin, 2011).

Abdul Wahid et. al (2011) stressed that two assumptions must be met for the purpose of applying the Theory of Reasoned Action in any study and they are: (1) human being is rational and makes systematic use of information available to them; and (2) human intention to perform or not perform behaviour is the immediate antecedent of the actions that under volitional control. In general, many studies have stated green purchase intention as the strongest influencing factor and there is a significant positive relationship between ecological intention and behaviour. (Ling-Yee, 1997; Maloney & Ward, 1973; Mei et.al. 2012; Chan and Lau 2000 & Aman et al 2012).

OBJECTIVES OF THE STUDY

- 1) To identify level of consumers' awareness about green electrical cooling appliances in Punjab.
- 2) To study the factors affecting consumer's perception towards two green electrical cooling appliances i.e. air-conditioner & refrigerator in Punjab.

RESEARCH METHODOLOGY

In the present study, the data was collected using structured questionnaires which was developed from previous studies. Items from previous studies were modified for

adaptation to the green electrical cooling appliances i.e. air-conditioner & refrigerator context. The questionnaires distributed were self-administered, which means that there is no interviewer asking or guiding the respondents throughout the questions, instead the respondents will themselves read and answer the questionnaire. Questionnaire contains 10 statements about environmental concern, environmental attitude and green purchase intention with regard to green electrical cooling appliances along with the demographic profile. Respondents were asked to rate their opinion on various environmental aspects on five point likert scale (1 - Strongly Disagree...). Primary data is collected from 150 consumers from Punjab using non probability convenience sampling. Out of which 126 responses are found valid for the study. The measures were pilot tested on 20 post-graduates, who were asked to indicate agreement or disagreement with the survey items using a five-point scale. Based on observations made by respondents in the pretest and advice from experts, modifications were made and the revised questionnaire was administered to the final set of respondents. (Mahapatra, 2013). Exploratory factor analysis, Confirmatory Factor analysis and Structural equation modelling techniques were employed.

ANALYSIS AND RESULTS

Descriptive analysis indicated the demographic profile of the respondents, awareness analysis and factors that influence their perception towards green electrical cooling appliances.

As shown above in Table-1: 57% the respondents were males, while 43% were females. 42.9% of the respondents interviewed were of the age group of 21-29 years, 38.1% in the age group of 30-39 and 19% are above 40 years. From the survey, 36.5% of the respondents had monthly income less than 10,000 rupees. 39.7% were in service sector, 27% were professionals, 25.4% were students and 7.9% were doing their own business.

Objective-1: To identify level of awareness of consumers 'about green electrical cooling appliances in Punjab.

Table 1 : Demographic Profile of Respondents

Variable Name	Category	Frequency	% of total sample
Gender	Male	72	57
	Female	54	43
	Total	126	100
Age (in years)	21-29	54	42.9
	30-39	48	38.1
	40 or above	24	19.0
	Total	126	100
Highest Education Level	Post Graduate	92	73.0
	Graduate	18	14.3
	Any other qualification	16	12.7
	Total	126	100
Occupation	Employed/Service	50	39.7
	Professional	34	27.0
	Student	32	25.4
	Business/Self-employed	10	7.9
	Total	126	100
Monthly Income	10,001-25,000	46	36.5
	25,001-50,000	36	28.6
	50,001-1,00,000	25	19.8
	More than 1,00,000	19	15.1
	Total	126	100

Awareness Analysis

Table 2: Consumers level of Awareness for Green Electrical Cooling Appliances

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very High Aware	63	50	50	50
	Highly Aware	38	30	30	80
	Low Aware	19	15	15	95
	Very Low Aware	06	05	05	100
	Total	126	100.0	100.0	

The frequency analysis of level of consumers' awareness for green products as shown above in Table-2 revealed that majority of the respondents (50%) in the sample were found very highly aware, (30%) were highly aware and (15%) were having low awareness about the green electrical cooling appliances. Only few respondents (5%) were found very low aware about such appliances whereas no respondents were found who are totally unaware about green products. Therefore the findings of the awareness analysis show that the respondents are well aware about green air-conditioners and refrigerators.

Source of Information

Table 3: Consumers' Source of Information About Green Electrical Cooling Appliances

Source	Frequency	Percent	Valid Percent	Cumulative Percent
Article/ Programme	42	33.3	33.3	33.3
Comp. Advertisement	36	28.6	28.6	61.9
Both	48	38.1	38.1	100.0
Total	126	100.0	100.0	

Table-3 shows that out of the sample of 126 respondents, only 28.6% respondents got information about green products from company advertisement through any medium whereas 33.3% were found to receive the information about green electrical cooling appliances from articles and programmes. The source of awareness about green products for 38% of the respondents was both – company advertisement and articles and programmes.

Objective-2: To study the factors affecting consumer's perception towards two green electrical cooling appliances i.e. air-conditioner & refrigerator in urban Punjab.

To achieve this objective, exploratory factor analysis was run on 10 statements in order to extract underlying dimensions (factors). Before employing factor analysis on the given data set, it is imperative to check whether the sample size is sufficient to run factor analysis or not. KMO test is used to check the sampling adequacy and the value of KMO should be greater than 0.6.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.712
Bartlett's Test of Sphericity	Approx. Chi-Square	345.764
	df	45
	Sig.	.000

As indicated in Table-4 that KMO value for the present study is 0.712 which is more than threshold value 0.6 (Kaiser and Rice, 1974), therefore, the sample size of the given data set is sufficient to apply factor analysis. Further, the Bartlett's test of sphericity is a test that provides the statistical significance that the correlation matrix has significant correlation among at least some of the variables (Hair et al., 2006). Test statistic for Bartlett test sphericity (Table 4) (Bartlett, 1954) in this case is significant ".000" ($p < 0.05$), supporting the factorability of the correlation matrix. Hence, all the 10 statements are sufficiently

correlated with each other which is desirable by factor analysis.

Table 5: Factor Names, Factor Loadings, Communalities, Variance Explained and Cronbach Reliability.

Factor's Names	Rotated Component Matrix(Factor Loadings)			Communalities	Variance Explained	Cumulative %	Cronbach Reliability
	1	2	3				
Environmental Concern	0.712			0.565	22.291	22.291	0.701
	0.702			0.592			
	0.675			0.677			
	0.533						
Environmental Attitude		0.858		0.601	19.490	41.781	0.570
		0.661		0.531			
		0.584		0.659			
Green Purchase Intention			0.774	0.778	18.516	60.298 (TVE)	0.673
			0.626	0.535			
			0.608				

Factor analysis was employed to validate both independent and dependent variable constructs. Principal component analysis with varimax rotation was utilized in all cases. Rotation converged in 5 iterations and it gives the rotated solution with 10 items/statements. In the current results, the eigen values for the independent variables were greater than one, as was the dependent variable. It is likely argued that the used items in the constructs were significant and qualified for the further analysis to study the data. The factor loadings or regression estimates of latent to observe are greater than the recommended level of 0.35, which is based on 126 respondents as sample size and at the 5 percent significance level (Hair et al., 2006).

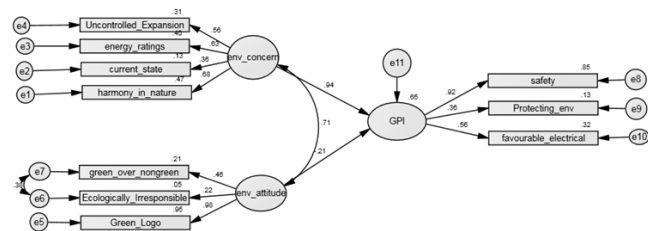
Table-5 shows the names given to the three factors are environmental concern, environmental attitude and green purchase intention. Only factors having eigen value more than one and statements having factor loadings more than 0.6 in their corresponding factors were retained. Communality is the sum total variance of a variable explained by the extracted factors. Ideally its value is 1 because all the factors together explains 100% of the variable but as we retain only few factor based on certain criteria like Eigen value, total variance explained etc. The factors which have been extracted through factor analysis should explain at least 50% of a single variable therefore the acceptable value for communality is 0.5. Table-5 shows that the communality value for all the variables is more than 0.5. It also shows the variances explained i.e. 22.291, 19.490 & 18.516 respectively are making total variance

explained by the 3 factors is 60.298% which is nearer to the desirable.

Reliability test

After completing EFA, internal consistency reliability to test unidimensionality was evaluated by Cronbach’s alpha. According to Hair et al. (2010) “Reliability is the extent to which a variable is consistent in what it is intended to measure”. Alphas above 0.6 are generally considered as being satisfactory while values below 0.6 are considered less than satisfactory, (Malhotra 2010 & Nunnally, 1970). Each construct shows Cronbach alpha readings of acceptable values of above 0.60 (Nunnally,1970), except for environmental attitude which obtained a Cronbach value of 0.570 which is approximately equal to 0.60. Hence, Table 5 shows alpha value of all the three factors is more than or almost 0.6 which is acceptable. The research framework consists of one exogenous – Green Purchase Intention and two endogenous variables – Environmental Concern & Environmental Attitude.

Figure 1 : Research Hypothesized Modified Model with Standardised Estimates



The data collected were coded and saved into IBM SPSS version 22 and analyzed using AMOS version 18. A confirmatory factor analysis (CFA) was duly conducted on measurement models and structural models. CFA specifies the indicators that define each latent construct (Hair et al, 1998). Measurement analysis, composite reliability analysis testing the fit for the hypothesized structural model. (Sentosa et.al. 2012). Through modification indices, items that are cross-loaded in more than one dimension were relaxed one at time as proposed by Long (1983) and insignificant parameters were excluded from the study.

CONFIRMATORY FACTOR ANALYSIS

Although EFA produced good results, yet, under the CFA, modifications are made to ensure that the hypothesized model meeting the SEM assumptions. Evidently, the items may subject to the modifications, although they were

statistically significant under EFA. Considering these modifications are of importance in ensuring, the data are free from the outliers and the non-normality of data. (Alsughayir & Albarq, 2013).

The authors used CFA with AMOS 18 to examine the convergent validity of each construct. From the confirmatory factor analysis result, we observed that the factor loadings of all observed variables are adequate ranging. This indicates that all the constructs conform to the construct validity test. The 10 items as noted in the CFA are further analyzed using SEM. MacCallum et al. (1996) suggested that a RMSEA that is less than 0.08 indicates good fit and reasonable errors of approximation in the population.

The ratio of goodness of fit to degrees of freedom should be no more than 3 (Carmines and MacIver, 1981), and the value of RMSEA should be less than 0.05, with the GFI, AGFI, NFI, CFI exceeding 0.9 (Bagozzi and Yi, 1988; Joreskog and Sorbom, 1989). Analysis returned the following values: chi-square ($\pm 2/df$) value of 2.546, GFI value of 0.895 approx. 90% within the acceptable level, AGFI value of 0.813, NFI value of 0.779, CFI value of 0.847, RMSEA value of 0.111. Although GFI is within the acceptable limit, yet the fit was not ideal. It can be improved by taking into consideration more variables and large sample size which will lead to minimise the error. Indeed, alternative thresholds have been suggested by Brown and Cudeck (1993) (GFI, AGFI, NFI not less than 0.8 and RMSEA less than 0.05), Hair et al. (2006) (CFI over 0.9), and Chau and Hu (2001) ($\pm 2/df$ no more than 3). Therefore construct validity and measurement efficiency were assured. P value was significant for environmental concern to green purchase intention as its value is 0.000 but it came out to be 0.281 for environmental attitude to green purchase intention rejecting the hypothesis that environmental attitude has significant effect on green purchase intention.

Structural Model Analysis

The present study conducted a linear analysis of the structural relation model using AMOS statistical software version 18 to test the hypothesized relationship between constructs. Maximum likelihood (ML) estimation was employed to compare structure coefficients between latent variables. Examinations of the goodness of fit indices (GOF) are based on the assumption that the observed variables are normally distributed.

The results show that the value of $\pm 2/df$ is 1.859, the value of RMR is 0.074, the value of GFI is 0.896, the value

of AGFI is 0.814, the value of NFI is 0.801, the value of CFI is 0.848, and the value of RMSEA is 0.078. The fit of the model is therefore near to the threshold limit. In addition, the analysis showed that the hypothesis supported environmental concern for green purchase intention but not supporting environmental attitude for the same.

DISCUSSION

The purpose of the study was to explore the factors affecting the consumer perception towards eco-friendly electrical cooling appliances in Punjab. The results revealed that majority of the respondents were aware about green electrical cooling appliances in Punjab. Further consumers were found to have concern about the environmental aspects of the electrical appliances they intend to purchase. They took into account whether the product they are purchasing is environment friendly or not. They use to check energy ratings before buying electronic products, they avoid using electrical cooling appliances of the company which are ecologically irresponsible, they are having intention to buy green appliances over the non-green ones, they are highly intended to buy green electrical cooling appliances because they feel it is favourable, safe to use and not harmful to the environment which shows that consumers in Punjab are conscious & concerned about environmental aspects of the electrical cooling appliances before they buy it.

SUGGESTIONS AND IMPLICATIONS

- It is really essential for the marketers and policy-makers to attain comprehensive knowledge about green issues and how various consumer segments predict such green issues. (Zimmer et al. 1994). Which particular parameters provide inclination towards the consumer choosing an energy efficient (star rated) product during the purchase. In short, an environmentally concerned consumer segment procurable for marketers to promote their wares only according to their requirements is not digestible enough in today's scenario, rather marketers need to frame policies and strategies related to segmentation and positioning. Marketers have to made attempts to identify demographic and psychographic variables that shape the green consumer profile. Such variables, when significant will help the marketers to segment the consumer market and capitalize on green attitude and green behaviour in an enormously efficacious manner.

- It is highly recommended that appealing & refined green marketing strategies for electrical cooling appliances are required to be developed and implemented in both private and public organisations and for this purpose marketers should capitalize on green branding, labelling, advertising, packaging to shape up an upswing for the demand of green electrical cooling appliances in Punjab.

LIMITATIONS

The present study suffers from some limitations such as sample size, limited time and budget. The sample size of the study is only 126, therefore the findings of the study would not be appropriate to generalize for whole Punjab region. The present study has been conducted by considering only three constructs though significant but don't help in excavating and capturing the full phenomenon. The study had some potential limitations as focus was only on perception of consumers in Punjab and the underlying perceptions of business executives and marketers on green electrical cooling appliances have not yet been tapped.

FUTURE SCOPE

Punjab still needs to raise the awareness level of consumers regarding environmental aspects of green electrical cooling appliances. Manufacturers have to put in extra efforts to raise the current low levels of awareness among consumers. Majority of respondents said that it is difficult for them to recognize the green electrical cooling appliances with star ratings and non green electrical appliances this shows the gap between efforts put to increase environmental awareness and advertisement of such green cooling appliances. Futuristic studies require to cater the role of various other variables like environmental knowledge, awareness, self concept, willingness to pay, perceived behavioural control, perceived availability, perceived price, trust, values, indulgence which might act as moderator or mediator to the basic constructs of the model. Moreover, the translation of the green purchase intention into actual behaviour is a matter of further investigation. Future qualitative studies could focus on specific green-branded products such as energy saving light bulbs to deepen customers' understanding and their ability to compare eco-branded and non-eco-branded electrical appliances in Punjab. Since environmental concern is a significant issue in today's scenario at

worldwide level, it is prudent to study the contribution of environmental laws or governmental role as a mediator to the purchase behaviour in the model. There is scope for further research by investigating similar consumer perception in other cities in India and hence validate the current set of attributes for a population representation from India.

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APPENDIX

10 statements :

- Uncontrolled expansion of electrical appliances industry must be checked
- Protecting the environment is more important than creating economic growth.
- I will not buy the electrical cooling appliances if the company that makes it is environmentally irresponsible.
- I will prefer to buy eco-friendly electrical cooling appliances over non-green ones.
- I think buying eco-friendly electrical cooling appliances is favourable
- I often purchase green electrical cooling appliances because they are safe to use.
- I am concerned about the current environmental state the world is in.
- One should maintain harmony with nature.
- I often check energy ratings before buying electrical cooling appliances i.e. air conditioner & refrigerator
- I buy only those electrical cooling appliances which are having green logo.

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