



ISSN 0973- 3167

SCMS JOURNAL OF INDIAN MANAGEMENT

UGQR
Impact Factor 1.1

Copernicus
Index Value 5.34

Volume XIII Number 1
January - March 2016

Embedded in
Cabell's Directory, Ulrich's,
EBSCO, & ProQuest

Jugaad Innovation in Indian Rural Marketing : Meaning and Role

Ajith P. and Anita Goyal

Competitiveness and Sustaining Performance: Integrating Sales and Marketing

Pankaj M. Madhani

Measures of Market Penetration: Indian Banks

Dilpreet Singh and Harpreet Singh

FDI Comparatistics: China and India

Kishore G. Kulkarni, Poornima Tapas, and Rita R. Dangre

Indian MFIs Pattern: Analytical Model Building

Madhumita Guha Majumder, Mohan Gopinath, and P. Janaki Ramudu

Causal Nexus Between Export and Growth: BRICS Nations

Srinivasan P.

Determinants of Leverage: Indian Transport Equipment Sector

D. Vijayalakshmi

Modelling Effects of Foreign Institutional Investment in BSE

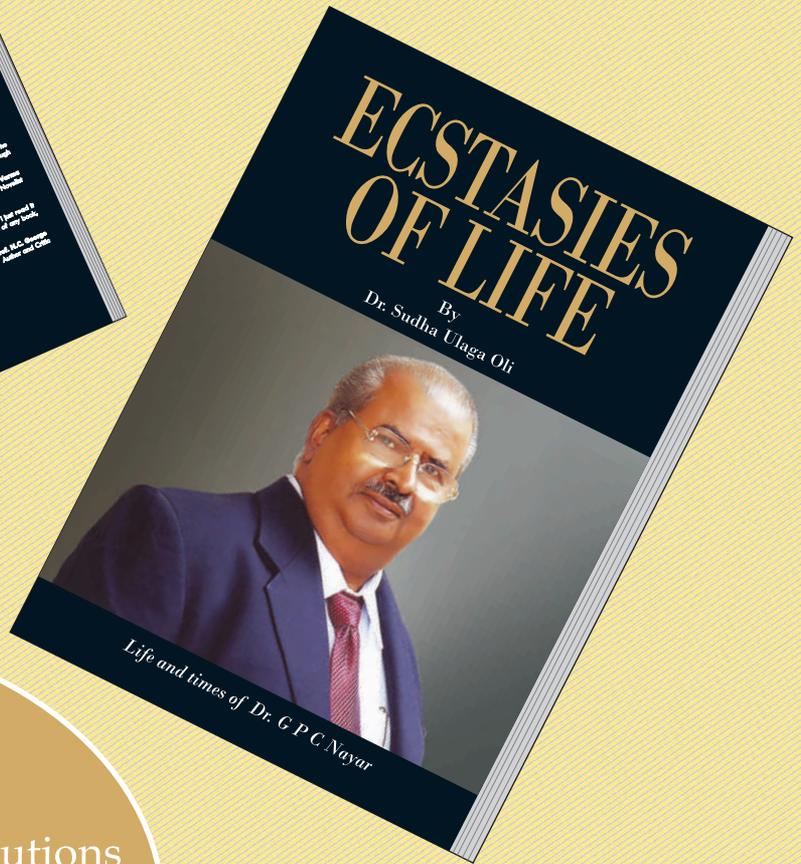
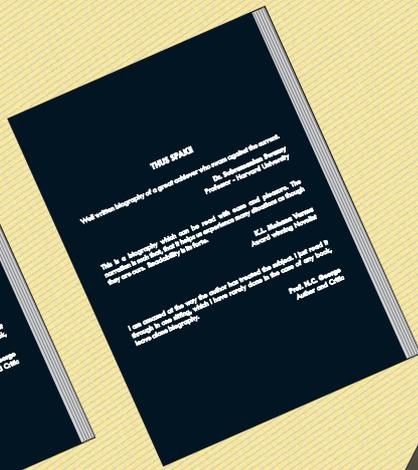
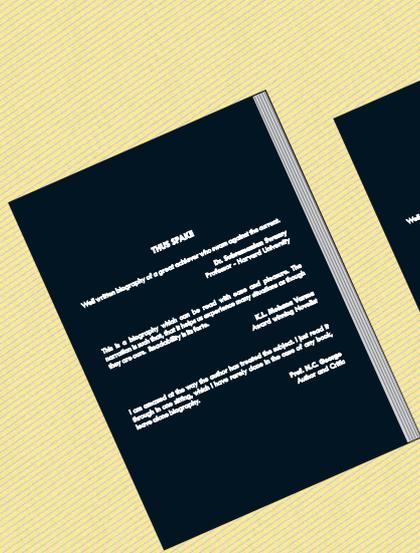
Dr. G.S. David Sam Jayakumar and A. Sulthan

Investment Behavior of Households: Post - Recession

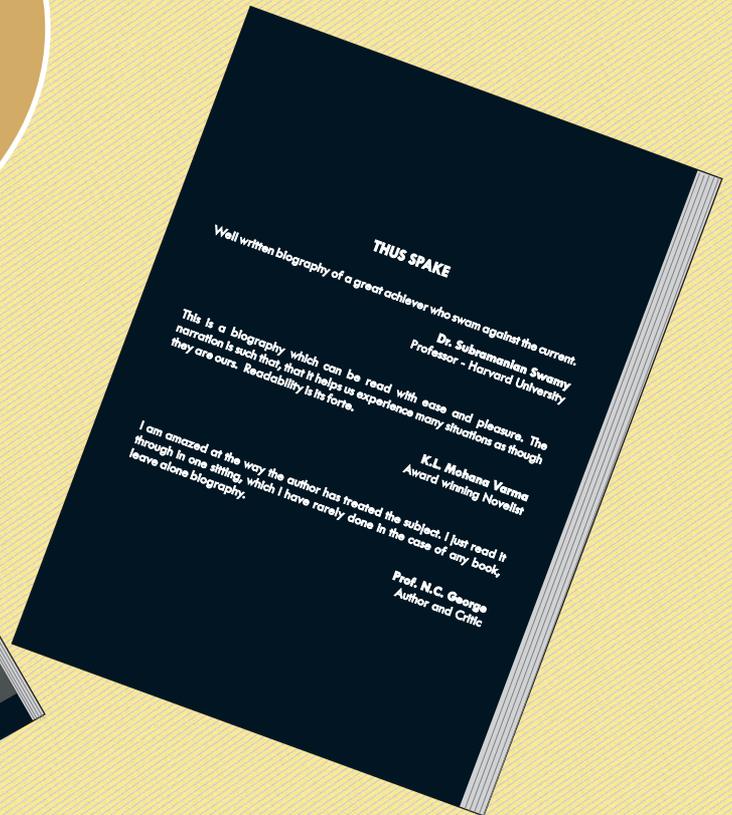
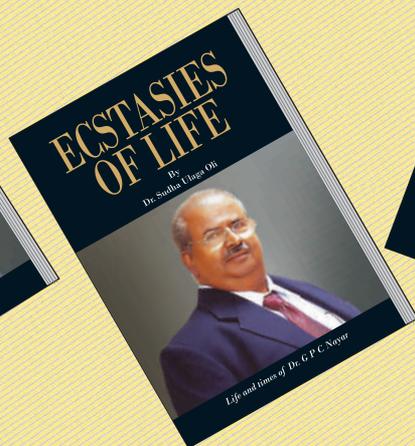
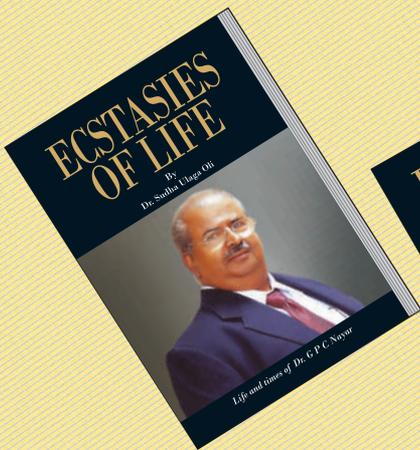
Onkar Nath Mishra

Knowledge Sharing Behavior and Innovation Capability: HRM Practices in Hospitals

U. Syed Aktharsha and Sengottuvel A.



Here's an entrepreneur who has created some excellent academic institutions in an unfriendly environment. It is a saga of trials and tribulations in an extremely readable manner by a consummate writer in English.



Contents

January - March 2016, Vol. XIII, Issue No. 1

Articles

Jugaad Innovation in Indian Rural Marketing : Meaning and Role

Ajith P. and Anita Goyal

Competitiveness and Sustaining Performance: Integrating Sales and Marketing

Pankaj M. Madhani

Measures of Market Penetration: Indian Banks

Dilpreet Singh and Harpreet Singh

FDI Comparatistics: China and India

Kishore G. Kulkarni, Poornima Tapas, and Rita R. Dangre

Indian MFIs Pattern: Analytical Model Building

Madhumita Guha Majumder, Mohan Gopinath, and P. Janaki Ramudu

Causal Nexus Between Export and Growth: BRICS Nations

Srinivasan P.

Determinants of Leverage: Indian Transport Equipment Sector

D. Vijayalakshmi

Modelling Effects of Foreign Institutional Investment in BSE

Dr. G.S. David Sam Jayakumar and A. Sulthan

Investment Behavior of Households: Post - Recession

Onkar Nath Mishra

Knowledge Sharing Behavior and Innovation Capability: HRM Practices in Hospitals

U. Syed Aktharsha and Sengottuvel A.

Chairman's Overview



Jugaad innovation is widely recognised as an important contribution by Indians to the world of management. It is all about frugal and flexible thinking that enables innovators to do more with less.

The genesis of Jugaad is from a scarcity economy where many people have to make do with limited resources. The main advantage of this Indian approach to innovation is that it can lead to solutions for the mass market at very low prices. Since the demand for products and solutions at lower prices is on the increase not only in developing countries but also in developed countries there is going to be a global relevance for the Jugaad approach. Our lead article in this issue on Jugaad Innovation: Meaning and Role in Indian Rural Marketing Context throws more light on this vital topic.

Today more and more managers recognise the need for greater coordination between marketing and sales functions in order to accelerate revenue growth. In international surveys conducted among senior executives from a wide range of industries, sales and marketing integration was mentioned as one of the organisational changes that would do the most to improve sales performance. A lot of discussion about aligning the two functions is going on all around. The second lead article in this issue deals with this hot topic.

Market penetration for a bank indicates potential for increased sales. Smaller the market penetration the more the bank should invest in its strategy for marketing. So far, little light has been shed on how market penetration by banks can be measured with accuracy. Therefore we bring to you the third lead article on measures of market penetration by banks.

In addition, this issue carries a number of learned articles on a variety of topics such as FDI, Indian MFIs, Nexus between Export and Growth, Determinants of Leverage, Investment Behavior of Households, Knowledge Sharing and the like.

I am confident that this issue will be truly informative and educative to our readers.

Dr. G. P. C. NAYAR
Chairman, SCMS Group of Educational Institutions.

SCMS Journal of Indian Management

A Quarterly Publication of
SCMS-COCHIN

Editors

Editor-in-Chief
Dr. G. P. C. Nayar
Chairman

SCMS Group of Educational Institutions

Editor
Dr. D. Radhakrishnan Nair
Professor
SCMS-Cochin School of Business

Editorial Board

Dr. Subramanian Swamy
PhD (Economics, Harvard University)
Formerly Union Cabinet Minister of
Commerce, Law & Justice,
Formerly Professor of Economics, IIT
Delhi & Department of Economics,
Harvard University, USA

Dr. Filomina P. George
Director
SCMS-Cochin School of Business
Kochi

Dr. Radha Thevannoor
Director, SSTM
Kochi

Dr. Jose Maria Cubillo-Pinilla
Director of Marketing Management
ESIC Business and Marketing School
Madrid, Spain

Dr. Naoyuki Yoshino
Professor of Economics
Keio University
Tokyo, Japan

Dr. I.M. Pandey
Professor of Reseach
Delhi School of Business
New Delhi

Dr. George Sleeba
Joint Mg. Director, V Guard
Industries Ltd., Kochi

Mr. Jiji Thomson IAS
Chief Secretary
Government Secretariat
Thiruvananthapuram
Kerala

Dr. Azhar Kazmi
Professor, King Fahd University
of Petroleum and Minerals
Dhahran, Saudi Arabia

Dr. Thomas Steger
(Chair of Leadership and Organization)
Faculty of Business, Economics and
Management Indoraction System
University of Regensburg
Germany

Dr. Mathew J. Manimala
Professor
Indian Institute of
Management, Bangalore

Dr. Kishore G. Kulkarni
Distinguished Professor of Economics and Editor
Indian Journal of Economics and Business
Denver, US

Dr. Abhilash S. Nair
Co-ordinator
Management Development Programs
IIM (K), Kochi Campus, Kerala



Editorial



Holacracy in Academia

Holacracy is a system of organizational governance. It is a social technology. In holacracy, authority and decision-making are distributed throughout a hocracy of self-organizing teams rather than in a management hierarchy. Holacracy has been adopted in for-profit and non-profit organizations in Australia, France, Germany, New Zealand, Switzerland, the United Kingdom, and the United States.

*The Holacracy system was incubated at Ternary Software, Exton, Pennsylvania, the company noted for experimenting with more democratic forms of organizational governance. In 2007 Brian Robertson distilled the best practices in management into Holacracy. In 2010 he laid out the core principles and practices of the system. In June 2015, Robertson's book, *Holacracy: The New Management System for a Rapidly Changing World* explained its practices. Arthur Koestler in his book *The Ghost in the Machine* (1967) coined holacracy from holarchy. Holarchy is composed of holons (Greek holos "whole"). Holacracy suggested "autonomous" and "self-reliant," at once dependent on the greater whole of which they form part.*

Holarchy, thus, is a hierarchy of self-regulating holons that function both as autonomous wholes and as dependent parts. The building blocks of Holacracy's organizational structure are roles. Holacracy distinguishes between roles and the people who fill them, as one individual can hold multiple roles at any given time. A role is not a job description; its definition follows a clear format including a name, a purpose, and optional "domains" to control. Roles are defined by each circle—or team—via a collective governance process, getting updated regularly to adapt to the ever-evolving needs of the organization.

Holacracy specifies a structured process known as "integrative decision making" for proposing changes in governance and amending or objecting to proposals. This is not a consensus-based system, not even a consent-based system, but one that integrates relevant input from all parties and ensures that the proposed changes and objections to those changes are anchored in the roles' needs (and through them, the organization's needs), rather than people's preferences or ego. It's time for holacracy to fit in some valued space in b-school academics.

Dr. D. Radhakrishnan Nair

Editorial Assistant:

Ms. Jessy Baby

Editorial Committee:

Prof. K. J. Paulose

Prof. A.V. Jose

Prof. B. Unnikrishnan

Jugaad Innovation in Indian Rural Marketing: Meaning and Role

Ajith P. and Anita Goyal

A b s t r a c t

The goal of this exploratory study is to unravel the meaning of jugaad, understand the principles of jugaad innovation and arrive at jugaad innovation model (JIM). Data was collected from 189 rural youths from different states of India to clarify the actual meaning of the term jugaad. The various dimensions of jugaad concept as understood by rural youths and described in the extant literature are discussed. This study presents JIM as a very useful tool for addressing the various unmet needs of rural consumers. How jugaad model, when used effectively by all stakeholders of rural development, can be a driving force for inclusive rural marketing and development, is elaborated. JIM model when adopted by business organizations can supplement the new product development efforts and accelerate successful innovations which are co-created with rural consumers. The paper concludes with managerial and developmental implications; and also some directions for future research.

Key Words: *Jugaad, Jugaad Innovation Model, New Product Development, Inclusive Rural Marketing, Rural Development, BoP, India.*



Dr. Ajith P.
Assistant Professor
KIIT School of Rural Management
KIIT University, Bhubaneswar -751024
Odisha, India
Ph: 7894185018
E-mail : professorajith@gmail.com



Dr. Anita Goyal
Associate Professor
Indian Institute of Management Lucknow
Noida Campus, UP-201307
Email: anita.g@iiml.ac.in

The needs at bottom of the pyramid, which is primarily represented by rural people, are diverse and required resources to fulfill these needs are limited. Innovation efforts at the grass root level, especially rural markets, are normally not capital intensive as there are very few funding organizations in such areas and people have limited technological capability. Success of an innovation depends on its adoption by target group. In the context of emerging markets, adoption of new products is heavily dependent on affordability (Paninchukunnath, 2013b). Rural people, who do not have sufficient required resources and infrastructure to meet their basic needs, are forced to find innovative ways in a flexible and frugal way. This approach has been traditionally called in Indian context as Jugaad. Jugaad is practised by almost all Indians in their daily lives to make the most of what they have (Radjou et al., 2012). Rural people are in constant search of some jugaad so that they can meet their needs and aspirations by not depending on costly alternatives which are available

from urban markets. Increasing concern for sustainability has focused attention of academics, practitioners, and public policy leaders towards extremely affordable frugal products and services. Thus, some of the key questions which will be addressed in the first part of this paper are: What is the meaning of jugaad? What are the principles of Jugaad approach? What is the generic model of jugaad?

In the above context, this paper has three key objectives, which are: (1) describe the meaning of jugaad, principles of jugaad innovation and propose a model of jugaad innovation; (2) explore the role of jugaad innovation in inclusive marketing; (3) discuss the role of jugaad innovation in rural development.

The Meaning of Jugaad

The Hindi word 'jugaad' (pronounced "joo-gaardh"), has various meanings. It can mean 'quick fix,' 'making do,' borderline criminal activity in an informal economy, frugal innovation, and also 'bribery' (Mitra, 1995; Birtchnell, 2011; Paninchukunnath, 2013b; Krishna, 2003). As per Singh et al. (2012) jugaad can be broadly regarded as a low-cost innovation, a coping mechanism, a quick-fix solution, and sometimes an unethical way of getting anything done. Radjou et al. (2012) describe the meaning of jugaad as - an innovative fix; an improvised solution born from ingenuity and cleverness. According to Dabholkar and Krishnan (2013), the term jugaad stands for 'creative improvisation.' Prahalad and Mashelkar (2010) describe jugaad as developing alternatives, improvisations, and make-dos to overcome a lack of resources and solve seemingly insoluble problems with a caution that jugaad can also stand for compromising on quality. Jugaad is the Indian approach of getting the maximum by spending the least amount of resources, many-a-time including time. Jugaad enables people to come up with quick, innovative and low-cost ways of solving problems, and to make something work even when conventional wisdom says it isn't possible. It's a philosophy that is at the heart of Indian entrepreneurial energy and optimism (Schomer, 2014).

The multiple meaning in various contexts has provided both positive and negative connotations to the concept and process of jugaad. To arrive at better clarity on what the rural consumers mean by the word jugaad, this study has undertaken exploratory research among Indian youths with

rural upbringing. Details of the exploratory research are given in the following methodology section.

Methodology

Interview method was used to gather data from respondents. Youth in the age group of eighteen to twenty five years from different parts of India were asked the question- "What do you mean by the Hindi word-jugaad?" The responses were recorded, transcribed and content analyzed. To select the respondents, purposive sampling method was adopted. The inclusion criteria for participating in the study were two; (1) age group 18-25; (2) should have been born and brought up in a rural context with Hindi as their mother tongue. Data was collected from 150 respondents (main sample) who belonged to different Hindi speaking states of India. To validate the findings, data from additional 65 respondents (validation sample) were collected from a different set of Hindi speaking states which were not part of the main sample.

Sample Characteristics

Main sample characteristics

Of the 150 respondents of the main survey, 18 responses were rejected as they were incomplete or did not meet the inclusion criteria. The final main sample of 132 consisted of 89 men and 43 women. The maximum respondents were from the age group of 20-22 years that is 50%, followed by 23-25 years with 34% and 18-20 years with 16%. The respondents represented following states; Madhya Pradesh (30%), Uttar Pradesh (29%), Himachal Pradesh (22%), Rajasthan (11%) and Uttarakhand (8%).

Validation sample characteristics

Of the 65 respondents of validation sample, 8 responses were rejected as they were incomplete or did not meet the inclusion criteria. The final validation sample of 57 included 38 men and 19 women. In the sample 48% respondents were from age group of 20-22 followed by 23-25 years with 37% and 18-20 years with 15%. The respondents were from states like Bihar (32%), Haryana (26%), Chhattisgarh (25%), and Jharkhand (17%). The meaning in the minds of youth is of particular importance as they are the potential users of this concept in their daily personal and occupational life in future. The rural youths,

with their higher level of education than that of their parents, are also an important influencer group in rural context. They are the change agents and opinion leaders keeping in consideration the technology dominant developmental interventions by organizations entering rural markets.

Results and Discussion

The statements given by respondents and their respective meaning are given in **Table I**. The findings from 132 respondents (main sample) and additional 57 respondents from different states (validation sample) are shown in the **Table II** below.

Table 1: Representative statements for each dimension of the jugaad concept

No	Statements	Dimensions
1	Doing things by whatever means	Whatever means/ Flexible
2	Innovate in their own terms	
3	Working efficiently with limited resources	
4	Not following any particular process or fixed rule	
5	Getting a particular thing by any means	
6	Shortcut method which Indians commonly use	
1	Getting work done is the ultimate aim	Fast/Agile/Shortcut method
2	Means to get proper material in time	
3	Finish work by any means	
4	Instant way to sort-out problems with available resources	
1	Prepare instruments without much expense	Affordable/ Low cost
2	Do temporary or cheap work	
1	Make something new with locally available resources	Use locally available resources and talent
2	Using substitutes available locally	
3	Need based resource utilization	
1	Manage anything in any kind of situation	Manage all situations
2	In any condition, manage anything	
3	Find alternative options	
1	To solve something somehow	Solve/ Fix something
2	Technique of solving problems with available resources	
1	To arrange something together	Develop or arrange something by own effort
2	To get something you do not have	
1	Find options when original product is not available	Alternate options
2	Original products are not accessible or is out of stock	
3	Find alternative options	
1	Modify the product to do multiple functions	Modify things/develop customized solutions
2	Original brands/products does not suit the harsh climate	

Table II: Frequency table of Main and Validation sample towards Jugaad Dimensions

S No.	Dimensions	Frequency (Main sample, n=132)	%	Frequency (Validation sample, n=57)	%
1	Whatever means(Flexible)	27	20	8	14
2	Develop or arrange something by own effort	18	14	13	23
3	Solve/fix something	16	12	3	5
4	Alternate options(in the absence/shortage of original products and services)	16	12	10	18
5	Fast/Agile/Shortcut method	14	11	4	7
6	Modify things/develop customized solutions	13	10	4	7
7	Manage all situations	12	9	8	14
8	Use locally available resources and talent	11	8	6	11
9	Affordable/ low cost	5	4	1	2
	Total	132	100	57	100

Major dimensions of meaning of the word 'Jugaad' are as follows:

1. Whatever means (Flexible)

From the main sample, we can infer that people associate flexibility as the major meaning of jugaad. An approach where people resort to complete the production of an object or execution of a process in multiple ways so that they reach the goal.

2. Develop or arrange something by own effort

After flexibility, jugaad is associated with doing things with self effort. This indicates the willingness to develop or arrange the products/services with own effort without being dependent on other individuals or organizations. Individuals leverage own resourcefulness to solve his/her problem by being creative.

3. Solve/fix something

After own effort, jugaad is associated with solving or fixing some pressing problem. All the locally available resources, both individual (ideas) and material resources are utilized to solve the problem. The available knowledge, skill and expertise of the individual or community are put to effective use to find a solution to the problem.

4. Alternate options

The next category with equal importance as solving a problem is generation of alternate options. Looking for resources in the immediate environment which can substitute for the original (costly) products/services so that the needs can be met in an uninterrupted manner is also a significant aspect of jugaad.

5. Fast/Agile/Shortcut method

The fifth dimension of meaning of jugaad is the agile and fast approach which rural people adopt to find a solution as they do not wait for long to address their needs. It may not be wrong to say that many of them are highly creative and ingenious in creating quick solutions to solve their day-to-day problems.

6. Modify things/develop customized solutions

The sixth aspect towards meaning of jugaad is modifying the existing things to make it more suitable to function well in the local context. As most of the products are not designed to meet the harsh environment of many rural contexts, the need to customize products is very high.

7. Manage all situations

The seventh dimension is managing all situations. As the uncertainties are quite high with poor infrastructure and

lack of many essential services, the ability to manage any situation is critical.

8. Use locally available resources and talent

The eighth dimension of jugaad's meaning is the willingness and ability to use locally available resources and talent. Rural area has many resources (especially natural resources) and many unemployed people, the willingness

to use them as substitute is high. This will help them to manage the needs with low cost and available local resources.

9. Affordable

The last dimension of jugaad's meaning is affordability. Rural people seek affordable solutions to meet their needs. Seeking affordable solutions to meet needs is a constant endeavour of rural consumers.

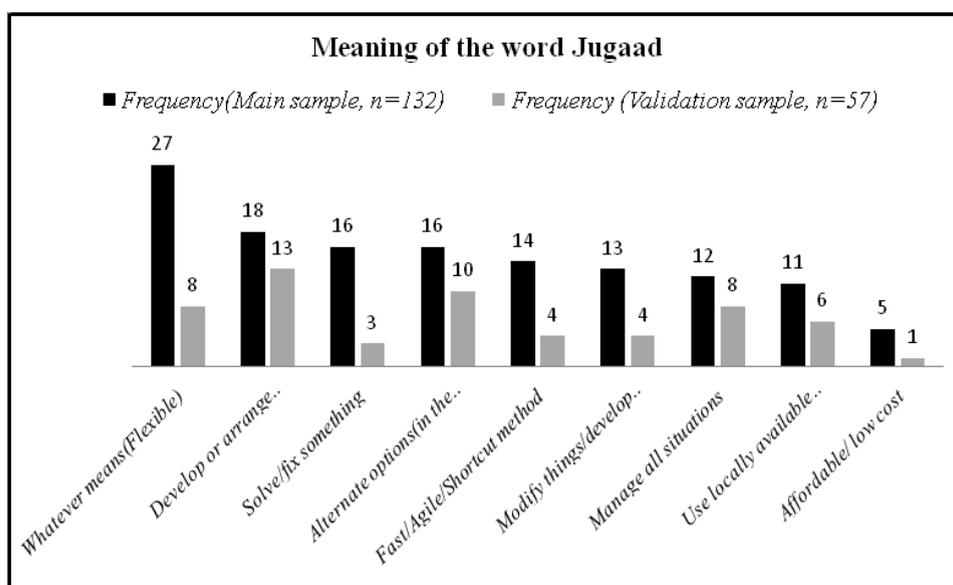


Figure 1: Comparison of Main Sample with Validation Sample of Meaning of Jugaad

The comparison of main sample with validation sample (from Hindi speaking states not included in the main sample) is shown in the **Figure 1**. The findings prove that all categories are valid. The leading categories which received maximum support from validation sample are discussed below:

- Manage all situations - Against the frequency of 12(9%) in the main sample, validation sample has 8(14%) responses.
- Develop or arrange something by own effort - Against the frequency of 18(14%) in the main sample, validation sample has 13(23%) responses.
- Use locally available resources and talent - Against the frequency of 11(8%) in the main sample, validation sample has 6(11%) responses.

- Alternate options - Against the frequency of 16(12%) in the main sample, validation sample has 10(18%) responses.

Categories with weak support from validation sample are as follows:

- Whatever means (Flexible) - Against the frequency of 27(20%) in the main sample, validation sample has only 8(14%) responses.
- Solve/fix something - Against the frequency of 16(12%) in the main sample, validation sample has only 3(5%) responses.
- Fast/Agile/Shortcut method - Against the frequency of 14(11%) in the main sample, validation sample has only 4(7%) responses.

- Modify things/develop customized solutions - Against the frequency of 13(10%) in the main sample, validation sample has only 4(7%) responses.

Definition of Jugaad Innovation

Radjou et al. (2012) describe Jugaad as a unique way of thinking and acting in response to challenges. It is a gutsy art of spotting opportunities in the most adverse circumstances and resourcefully improvising solutions using simple means. Jugaad is about doing more with less. Gupta et al. (2012) has defined jugaad as - "Low-cost sustainable innovation in process, products, and/or services done locally, and with a strategic intent/purpose." Paninchukunnath (2012) defined jugaad innovation as- "A zero-based approach to solving customer's problem by arriving at homegrown solutions/offerings which are simple, sustainable and extremely affordable leading to fast adoption by target customers." According to Radjou et al. (2011), the approach of jugaad innovators is to innovate faster, cheaper and better. Doing things faster, cheaper, better is described as operational innovation by Stevenson and Kaafarani (2011).

Based on the existing definitions and also in the light of better clarity on the meaning of jugaad, we can define jugaad as - Adopting a flexible approach to manage all situations by using locally available resources and developing solutions (or alternate options) with own effort. Thus a comprehensive definition of jugaad innovation is as follows:

Developing simple, sustainable and affordable solutions or alternate options by adopting a flexible, fast and frugal process with own efforts (mental and physical) by rural people to meet their needs using existing products or locally available resources.

Context in which Jugaad Innovations Originate

India has vast population and there is big diversity in the social and economic status of its people. Indians are natural leaders in frugal innovations, with their 'jugaad system.' They are masters of developing make-shift but

workable solutions from limited resources. Jugaad mindset is born out of historical scarcity and an environment of uncertainty, which emphasizes ad hoc improvisation and flexibility as a way of getting things done (Schomer, 2014). Frugality is a very common attribute of majority of Indians and frugal innovation is very common in India. India's villages have become a hot bed of innovation, as its rural poor develop inventions out of necessity. The resource constrained (mainly financial) context of rural markets where majority lead a frugal life meeting most of their daily requirements from natural resources is the natural context for jugaad innovation model to flourish. Unavailability of urban products or non-suitability of urban centric design of majority of products motivate rural users to improvise the existing products to adapt them to local needs or development of new products from locally available raw materials. The rural markets and the large BoP within the rural markets provide a unique ecosystem which nurture jugaad innovations.

Principles of Jugaad innovation

According to Radjou et al. (2012), the guiding principles of jugaad innovation include; seek opportunity in adversity, do more with less, think and act flexibly, keep it simple, include the margin and follow your heart. These principles are expected to help drive resilience, frugality, adaptability, simplicity, inclusivity, and empathy in the frugal innovation approach and output. Jugaad is a "bottom up" innovation approach that provides organizations in both emerging and developed economies the key capabilities they need to succeed in a hypercompetitive and fast-moving world namely; frugality, inclusivity, collaboration, and adaptability (Paninchukunnath, 2012).

Model of Jugaad innovation

Paninchukunnath (2013b) had proposed a model of frugal innovation in the emerging markets context. In that model, a zero-based approach by organizations to solve customer's problem by developing homegrown solutions/offerings was proposed to provide jugaad products which are simple, sustainable and extremely affordable (see **Figure 2**). This was expected to lead to fast adoption by target customers.

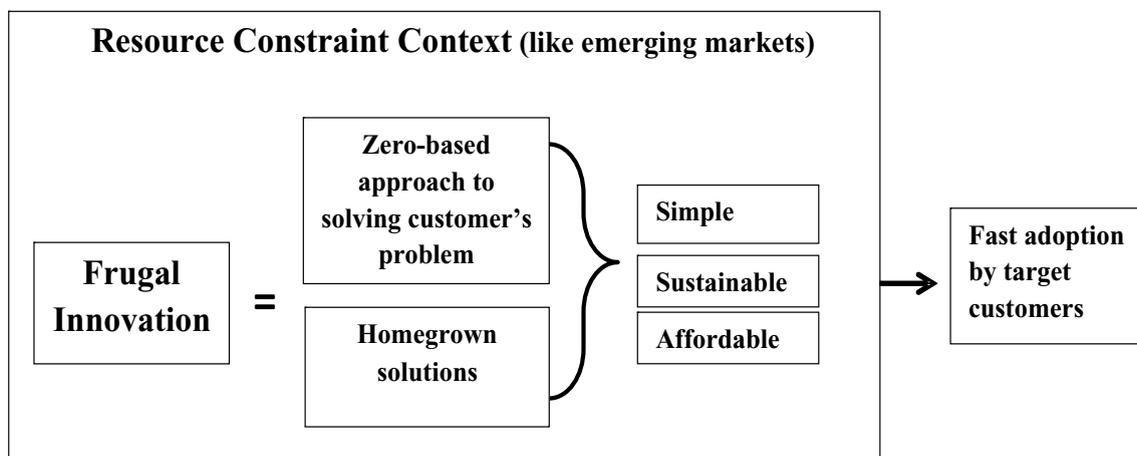


Figure 2: Frugal Innovation (Source:Paninchukunnath, 2013b)

In the light of the findings on the meaning of jugaad as described before and the extant literature available till now, a new model is proposed as shown in Figure 3. This model is an attempt to move closer to the grassroots and capture the thought process of rural people unlike the previous

model (frugal innovation) which is more generic. Jugaad Innovation Model (JIM) when adopted by organizations can lead to inclusive marketing and there by contribute better to rural development.

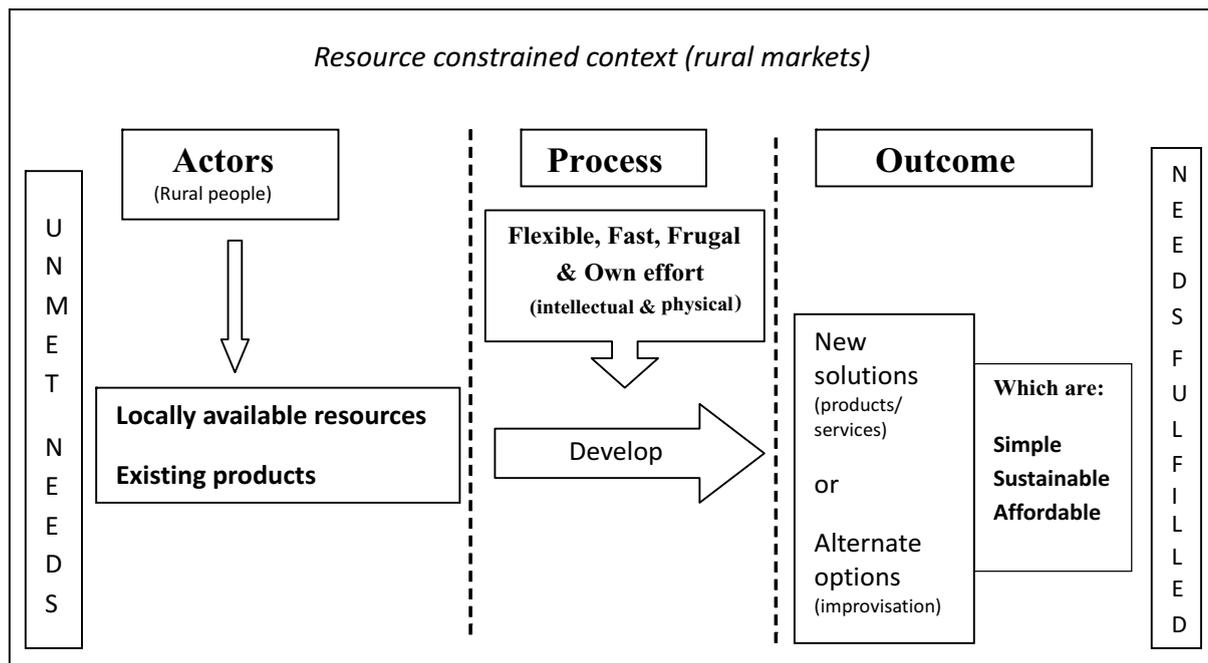


Figure 3: Jugaad Innovation Model (JIM)

Actors

The actors of JIM are rural people who are creative with a desire to fulfill unmet needs. Their constant endeavour is to make products and processes which will facilitate their goal achievement with limited income and locally available resources. They will work with raw-materials (mostly which are available locally) or on the existing products (some of them which are sourced from urban markets). The key goal of an actor is to meet the pressing needs quickly with available resources. The education level of actors can vary from illiterate to post graduates.

Process

The process followed is generally iterative. It is rarely linear and well planned. Flexible approach which is fast and frugal is followed to keep the cost low. Locally available products are used either due to unavailability of original spares/components or the high cost associated with them. The actors use their own creative and intellectual efforts. Traditional and indigenous practices are blended with locally available technology whether traditional or modern. The physical efforts needed to source the raw material/components are also exerted by them. The financial investment needed is also usually borne by the innovator.

Outcome

The outcome is generally an 'alternate option' to costly existing product (mostly from urban markets) or a 'new product' using locally available resources. The end products are simple, sustainable (durable and easy to use and maintain) and highly affordable. The new products and processes are generally not patented.

Role of Jugaad Innovation in Inclusive Marketing

Marketing should be viewed as a process that encompasses all the facets of an organization that are involved in making and fulfilling its promises to customers. Kumar (2004) recommended marketers to change their role from implementers of traditional marketing functions to strategic coordinators of organization-wide initiatives aimed at profitably delivering value to customers. Marketing should build a corporate-wide respect for the customer. The Marketing team of an organization should help management describe the business as pursuing a bigger idea (not just selling or marketing some offerings) one that

adds value not only to the core customers but to employees, other stake holders and society as a whole. This will also contribute to the vision and mission which in turn will guide and motivate employees to perform better. This will also help avoid marketing myopia or urban myopia (Levitt, 1960; Paninchukunnath, 2010). If marketing organizations have to sustain, the starting point has got to be the concern for human beings, who must be sufficiently empowered to consume by entering in to exchange relationship with them (Paninchukunnath, 2010). Organizations can no longer unilaterally devise products and services. They must engage stakeholders; from customers and employees to suppliers, partners, and citizens at large as co-creators (Ramaswamy and Ozcan, 2014).

A comprehensive but simple definition of marketing suggested by Paninchukunnath (2013a) is "the sustainable process of empowering target individuals and groups to enter into exchange relationships for value creation that will ensure well-being of all key stakeholders and society at large." Inclusive marketing can play developmental role by ensuring effective distribution of products and services in the remote rural markets (which are mostly underserved and neglected today). This will help organizations achieve double bottom line and in creating shared value (Porter and Kramer, 2011). Baker (1976) suggested that marketing could be defined as a mutually satisfying exchange relationship. That means marketing is, or should be, a force for good, focused on enhancing well-being and human welfare. Win-win outcomes are always to be preferred to zero sum results.

According to Baker (2013), marketing is a force for good that is concerned with: (a) Researching customer needs and wants, (b) Communicating the findings to producers with the capability to satisfy them, (c) Involvement in the creation and design of the desired goods and/or services that add value and deliver the desired benefits; and through the use of segmentation, targeting and positioning, (d) Informing the intended user (customer) of the variety and choice on offer, (e) Ensuring that the offer is available for "purchase" at a convenient time and place for a price that represents added value to the customer, (f) Monitoring performance in use and offering continuing after sales service to ensure that the satisfaction promised is received.

The iceberg model (see Figure 4) explains that the understanding of marketing among majority of practitioners and society in general, is limited to advertising, sales promotion and public relation. According to Baker (2013), marketers need to adapt and industry needs to move away from “promotional” marketing towards “transformational” marketing based upon a vision of sustainable and efficient performance designed to benefit both supplier and user and increase overall welfare and well-being of all stakeholders in the process. Marketing needs to make clear its strategic contribution to the overall direction and governance of an organization. As shown in the iceberg model, innovation and new product development is an important but poorly understood part of marketing. Jugaad innovation model can make this critical component of marketing more inclusive by making the process flexible and open even within an organization context. Affordability and sustainability, not premium pricing and abundance, are the need of today to drive innovation (Pralhad and Mashelkar, 2010).



Figure 4: The Marketing Iceberg (Source: Baker, 2013)

Pralhad (2012) has emphasized that the poor should not be thought of as a burden but must be recognized as resilient and creative entrepreneurs and value conscious consumers. Inclusive Marketing is an approach that looks at the poor not only as consumers but also as producers or suppliers. This approach offers promise to add economic value to goods

and services contributed by the poor. It can therefore impact poverty positively. Marketing which is characterized by the development at all levels of society and combination of various resources and strategies is an effective way towards achieving this. Marketing has become a critical component for any sustainable livelihood promotion initiative and to ensure a proper stake for the poor, inclusive marketing is imperative. Giving voice, visibility and velocity to creativity and innovative potential of rural people has to be one of the key goals of inclusive marketing. Majority of the people in rural areas may be economically poor but they are rich with indigenous knowledge, ideas and wisdom.

The domain of rural marketing should cover all types of exchange relationships where rural people are participants or are being empowered. Jha (1988) made the first attempt to classify rural marketing into three distinct flows namely rural to rural, rural to urban and urban to rural. This classification was further elaborated by Vaswani et al. (2005) with a developmental focus. To incorporate the recent developments in the Indian rural markets, the domain can be expanded to include rural to international R_2I as an important emerging flow (Paninchukunnath, 2013b). The four flows covers all the exchange relationships observed in the market where one of the participants in the exchange process is from rural area. The comprehensive coverage of all relationships expands the scope and relevance of rural marketing for 21st century.

Apart from including all kinds of flows or exchanges, to make rural marketing more inclusive, the innovation process by the organization can adopt a bottom up approach where the rural people can be a part of the innovation team. Apart from giving the exact needs and expectations, rural people can share their jugaad approach to create better products and services. This will demand a deviation from the conventional eight step new product development (NPD) followed by majority of the organizations (Kotler et al., 2010). The bottom-up approach (JIM) can complement the top-down (conventional) NPD process to ensure better success of new products at lower cost. Adopting and combining both the approaches can also create opportunities for reverse innovation. According to Govindarajan (2012) there are three keys to jugaad: one, for jugaad to really work, start by

understanding the customer problem. Talk to customers, understand what they really want. Two, adopt a zero-based solution approach. Take a clean sheet of paper; start with the customer's problem, and ask, 'How do I solve it?' Three, focus on execution. The key to jugaad is to clearly understand the customer problem. Always start with the customer problem, and then go back for the solution. Checking for acceptability and affordability is critical as they are the vital components of 4 As model proposed by Sheth and Sisodia (2011) for marketing success in emerging markets. JIM model when adopted by organizations for NPD can follow the steps as given below (Paninchukunnath, 2013b; Leonard and Rayport, 1997);

1. Study the customer need and current practices with context (adopt a zero based solution approach),
2. Develop concept(try for co-creation),
3. Develop marketing strategy,
4. Design the prototypes/process(use maximum of locally available resources) and follow empathic design,
5. Do test marketing (check for acceptability, affordability),
6. Repeat the test in various locations and with different groups,
7. Undertake final modifications,
8. Commercialization.

Rural Market in India and BoP

The BOP population in India accounts for 924.1 million people (Singh et al., 2012). Sector-wise, food is the biggest BOP market (US\$ 2.8 trillion), followed by energy (US\$ 433 billion), housing (US\$ 332 billion), transportation (US\$ 179 billion), health (US\$ 158 billion), ICT(US\$ 51 billion) and water (US\$ 20 billion) (Subrahmanyam and Gomez-Arias, 2008). BoP markets are not only potential markets for selling products and services but also are an untapped source for innovative ideas and innovations (Pralhad, 2012). Therefore, engaging, encouraging and enabling the people in BoP markets will be critical for all managers who want to serve and develop them in a sustainable way. In other words,

an emerging market, like India, gives marketers enough opportunity to be a market creator. Parity treatment is one of the expectations from a marketer, i.e, treating urban and rural customers with equal importance. Focusing only urban consumers, urban myopia, by the marketer will be quickly identified by the consumers and it will have long-term repercussions. Urban Myopia is defined as the marketing firm's approach of focusing only the urban markets to participate, in a country where rural markets are dominantly present (Paninchukunnath, 2010). Companies suffering from urban myopia face intense competition because urban markets are over supplied by existing players. The intense competition escalates the cost of participation. The intensity of urban myopia is so high that in spite of facing acute problems in urban markets like low market share, brand polygamy by consumers, competition from private labels, declining margins due to heavy competition and so on, companies with urban myopia still refuse to look beyond urban markets. If companies continue with urban myopia, they will not be able to maintain their growth. They have to shift their focus from only urban to semi-urban and rural areas. It is time that marketing organizations start listening to the unspoken pains of rural consumers and thereby give birth to frugal innovative offerings to effectively address the unmet needs (Paninchukunnath, 2012). Poor people are applying jugaad, despite their low-levels of literacy, and frugal resources, as a survival strategy. Jugaad is not only a way of 'making do' but also a methodology that has emerged as a way of survival for consumers at the BoP (Singh et al., 2012). Large corporations can join hands with small rural innovators to reach the consumers at the base of economic pyramid.

Recent measures of financial inclusion and mobile connectivity enhancement when combined with opportunity for alternate livelihood can contribute to elimination of rural poverty. Marketing can contribute to alternate livelihood opportunities by concentrating on the specific strengths and needs of rural communities in each socio-cultural region of India. Reducing the urban rural divide can be accelerated by empowering rural people and communities with their inclusion in the production and distribution of products. In the three critical phases of production, distribution and consumption (PDC cycle) in any society, rural people are today included mainly in production. Involvement in value addition like packing,

branding, transportation, storage and processing can enhance the purchasing power of rural people and there by the involvement in the consumption of various products and services.

Sustainable rural marketing (SRM) is not possible without rural development. SRM and rural development are mutually dependant and reinforcing. Rural development can lead to better purchasing power among rural consumers. Rural people, when included in the PDC cycle, will also be empowered to consume in a sustainable way. The role of rural marketing is to include rural people in the existing and new PDC cycles of various products and services. In recent years, rural markets have acquired significance, as the overall growth of the economy has resulted into substantial increase in the purchasing power of the rural communities. In today's competitive scenario, the rural markets are as vital as the urban markets for marketers. Sustainable rural marketing can be achieved only by developing three capabilities namely; (1) Ability to understand the rural consumers, community and institutions along with the context, culture and lifestyle; (2) develop ability to market to rural consumers, households, community and institutions, and: (3) enhance potential rural consumers ability to consume by including them in the PDC cycle (Craig and Douglas, 2011). Involvement of rural people in PDC cycle will be easier when organizations adopt JIM along with their conventional NPD approach.

Illustration of JIM Model in Rural Context

Given below are two examples, one of product and one of service to illustrate how JIM is contributing to sustainable rural marketing.

1. Mitticool Refrigerator.

Mr. Mansukhbhai Prajapati from Gujarat, after testing all sorts of soil, clay and refrigerator designs, finally came out with his unique "Mitticool" fridge in 2005. Mitticool is made of a specific type of terracotta clay with numerous pores on its walls. About 10 litres of water travel through it, circulating through the pores and eventually evaporating. The evaporation lowers the temperature of the clay, and keeps things stored in the fridge fresh. Mitticool can keep the fruits and vegetables fresh for five days. The price of one Mitticool refrigerator is INR 3400, which is highly affordable for rural people. As there is no need of electricity to use Mitticool, the running and

maintenance cost is zero (Sinha,2014). As per the JIM model, the actor in this case is a rural person who is creative with a desire to fulfill unmet needs. He works with raw-materials which are mostly available locally. The key goal of Mr. Prajapati is to meet the pressing needs quickly with available resources. The process followed to achieve the goal is flexible approach which is fast and frugal so as to keep the cost low. Flexible thinking allowed the innovator to use a millennia-old material like clay to create a fridge out of it. The outcome of Mr. Prajapati's effort is a 'new product' using locally available resources which is simple, sustainable (durable and easy to use and maintain) and highly affordable. It is an 'alternate option' to costly existing product (fridge running on electricity) for rural people.

2. Intra Rural Farm Products Distribution Service - The RUDI Model

RUDI model, a successful rural to rural R₂R initiative from Gujarat, follows an inclusive approach in its marketing and has JIM characteristics. The RUDI model is organized to create short supply chains between rural producers and consumers by eliminating middlemen thus generating higher incomes for small farmers and employment opportunities for rural women in packaging and distribution; and providing good quality, basic products to rural customers at their doorstep at reasonable prices. RUDI was born when the largest rural women's network in the country, SEWA (Self Employed Women's Association) – in partnership with the Government of Gujarat, determined to assist rural women to produce, process, market and sell agro-commodities through training and mentoring, as well as eliminating middlemen through establishing direct ties with bulk buyers. The company operates with a unique short, supply chain model of procurement, processing, packaging and distribution of RUDI products through rural self-help groups of women, creating employment opportunities for rural women (Paninchukunnath, 2014). RUDI model is a classic case of how rural people (especially women) can be made active participants in the various stages of collection and distribution of agri-commodity (which were activities traditionally dominated by men). This intra-rural distribution model which has evolved within the rural context by leveraging locally available resources (both natural and human) is a good example of jugaad service. In this model, all the activities of production and distribution

are handled by rural people who provide them enough income to enhance their consumption of various needed products and services.

Discussion

Innovation process in resource-constrained environment of an emerging economy cannot follow the same practices as of resource rich developed economies. The 4As framework of marketing for emerging markets recommends the assessment of acceptability and affordability which are very critical in rural and BoP markets (Sheth and Sisodia, 2011). There is need to reconsider the innovation approaches of people in emerging nations especially in the rural and BoP markets. The indigenous Indian model of frugal innovation popularly called in the rural context as 'jugaad' can be beneficial for organizations to develop innovative products and services for rural consumers. The products based on jugaad innovation may find demand from urban and international markets as per a growing phenomenon called reverse innovation (Govindarajan and Trimble, 2012). The benefits of jugaad innovation can be derived at a larger scale if there is consensus among academicians and practitioners regarding the meaning, principles and model of jugaad innovation.

The responses from 189 adults from different parts of India shows that the key meaning of jugaad as understood by rural people in the Hindi speaking states has different dimensions. Nine different meanings has emerged from the main sample. Delineating the leading dimensions, it can be inferred that the key meanings associated with the word jugaad are- flexibility, developing/arranging with own effort, use locally available resources and generating alternate options. The core meaning of flexibility is reflected in the principles of jugaad innovation given by Radjou et al. (2012). The responses from rural youth did not contain any negative connotations generally associated with the term jugaad as described by few authors (Birtchnell, 2011; Krishna, 2003).

The developed and proposed jugaad innovation model (JIM) captures the meaning and principles of jugaad innovation and recommend it as a parallel model to the conventional linear, rigid and resource intensive model followed by most organizations in a generally closed and expert driven

environment. JIM can complement the conventional model of NPD with its bottom-up approach and accelerate the innovation efforts of organizations reaching out to remote rural markets. The inclusive and sustainability dimensions of JIM are of great relevance for reducing the urban rural divide and making marketing more inclusive. It will not be wrong to say that JIM can play a critical role in making rural marketing more inclusive and sustainable. The fear of compromising on quality by JIM followers as expressed by Prahalad and Mashelkar (2010) can be effectively addressed by supporting them with managerial talent by business organizations. The product design for frugal and sustainable products should be driven by actual users. JIM when understood and adopted by business organizations can accelerate co-creation with rural people who are the actual users of such jugaad products which are by design simple, sustainable and affordable (Prahalad and Ramaswamy, 2000, 2004). Adding JIM model to the existing new product development efforts of the business organizations will help them adopt the pull-up approach which will in turn make the rural marketing effort inclusive and holistic (Paninchukunnath, 2010). JIM practised mainly by individuals in rural context can be adopted by business organizations to accelerate their new product development efforts on one side and as a strategy to co-create products with all stakeholders as they try to reach out and serve rural consumers.

Theoretical contribution

This research has provided better clarity on meaning and definition of jugaad as well as the principles and model of jugaad innovation. The jugaad innovation model developed and proposed is perhaps the first attempt to conceptualize a comprehensive model for the commonly practiced jugaad approach of innovation in the rural areas of India. JIM model proposed in this paper comes close to the category of operational innovation as recommended by Stevenson and Kaafarani (2011). An attempt to describe the steps which can be adopted by organizations for accelerating NPD using JIM is also a major contribution of this paper. In a world with increasing population, the pressure on natural resources will be ever increasing. In such a context, JIM with its flexibility and sustainability dimension will be much sought-after.

Managerial contribution

Making affordable solutions for rural people especially the BoP is a big challenge for all organizations. This study will be helpful to understand the role and importance of jugaad approach in addressing the various challenges faced by organizations and society. It can foster new product and process development to better address the unmet needs of rural consumers. This study will also sensitize managers to undertake co-creation of new products by engaging with idea rich rural people. JIM can be a powerful tool in the hands of managers to adopt inclusive marketing in emerging markets. JIM can make a significant contribution to accelerate the innovation efforts of organizations and there by contribute to transformative goal of marketing as proposed by Baker (2013). JIM can assist in co-creating better products for rural and BoP markets ensuring higher rate of product launch success in these markets. JIM provides an approach for designing extremely affordable frugal products and services which have always been a challenge especially for MNC organizations, most of which aims to enter and serve emerging markets with large BoP markets.

Future directions

As an indigenous innovation model with grassroots relevance, it is important that the JIM is developed further for extracting the full benefits by all stakeholders in the society. This exploratory study has opened up many avenues for future research. This study can be replicated by taking larger samples from all the Hindi speaking states or by taking stratified sample of all age group of people in the society. The differences in the meaning as understood by different age groups/cohorts can be studied. This will help to understand the evolution of the concept and emerging new meaning for the concept. The JIM for product can be different from the model for services. Future research can focus on the similarities and differences in the approach for developing jugaad products and jugaad services. Along with making the product affordable, making them environmentally sustainable is a pressing need in rural context. The future research also needs to focus on sustainability and nature friendly dimensions of jugaad innovations. The potential of JIM to create products with reverse innovation potential is an important area of future exploration. The willingness of rural people to collaborate

with marketers from business organization to co-create solutions adopting JIM also needs to be investigated.

References

- Baker, Michael J. (1976). "Evolution of the marketing concept." in Michael J. Baker (ed.) *Marketing Theory and Practice*. London: Macmillan
- Baker, Michael J. (2013). "The Marketing Dilemma." *EuroMed Journal of Business*, Vol. 8(2), pp.104 – 116
- Birtchnell, Thomas (2011). "Jugaad as systemic risk and disruptive innovation in India." *Contemporary South Asia*, 19(4): 357–72.
- Dabholkar, Vinay and Rishikesh T. Krishnan (2013). *8 Steps To Innovation : From Jugaad To Excellence*. Harper Collins Publishers India Ltd.
- Govindarajan, V. (2012). "Jugaad - A Model for Innovation." available at <http://forbesindia.com/article/defining-debates-of-2011/vijay-govindarajan-jugaad-a-model-for-innovation/25512/1?id=25512&pg=1#ixzz1k6iaUBif> – accessed 21 March 2015.
- Govindarajan, V. and C. Trimble (2012). "Reverse Innovation." *Harvard Business Review Press*, Boston, Massachusetts.
- Gupta, V., R. Singh and A. Mondal (2012). "Jugaad – growing from "making do" and "quick fix" to innovative sustainable and low-cost survival strategies at the bottom of the pyramid." *Marketing and Public Policy Conference Proceedings*, p.63
- Jha, M. (1988). "Rural Marketing: Some Conceptual Issues." *Economic and Political Weekly*, 23 (9): M8–M16.
- Krishna, A. (2003). "What Is Happening to Caste? A View from Some North Indian Villages." *The Journal of Asian Studies*, 62 (4): 1171–93. <http://www.jstor.org/stable/3591763?origin=crossr>, Accessed on 10 November, 2014.
- Kumar, N. (2004). "Marketing as Strategy" *Harvard Business Review Press*.
- Leonard, D. and J.F. Rayport (1997). "Spark Innovation Through Empathic Design." *Harvard Business Review*, Nov.- Dec., pp.103-13.
- Levitt, T. (1960), "Marketing Myopia." *Harvard Business Review*, Jul/Aug, Vol. 38 Issue 4, p45-56.

- Mitra, B.S. (1995). "India's Informal Car." *Asian Wall Street Journal*, p.10.
- Paninchukunnath, A. (2010). "Rural Marketing in India and the 3P Framework." *SCMS Journal of Indian Management*, Vol: 7(1), 54-67.
- Paninchukunnath, A. (2012). 'Frugal Innovation, Design Principles and Indian Market.' Conference proceedings, International Conference on 'Marketing in Emerging Economies - An Agenda for the Next Decade' organized jointly by Punjab Technical University, Kapurthala and the Kenan-Flagler Business School, University of North Carolina (UNC), USA, at Amritsar (India).
- Paninchukunnath, A. (2013a). 'Marketing Frameworks for 21st Century Marketing' - Available at -<http://www.afbe.biz/main/wp-content/uploads/AFBE%202013%20Conference%20Papers%20-%20CBS.pdf>, AFBE 2013 CONFERENCE PAPERS (CBS), pp 51-65, ISSN 1905-8055.
- Paninchukunnath, A. (2013b). 'Jugaad - The Indian Model of Frugal Innovation,' Proceedings of the 2013 Annual Conference of the Emerging Markets Conference Board, Published by Nelson Mandela Metropolitan University Business School, ISBN 978-0-620-57660-4, pp 151-163.
- Paninchukunnath, A. (2014). "Rural Marketing- The RUDI Model for Intra-rural Marketing." *Pacific Business Review International*, Vol. 7 (4), pp. 29-35.
- Porter, M. E. and M. R. Kramer (2011) "Creating Shared Value." *Harvard Business Review*, Vol. 89, (January-February), pp 1-17.
- Prahalad, C.K. and V. Ramaswamy (2000). "Co-opting customer competence." *Harvard Business Review*, Vol. 78(1), pp.79-87
- Prahalad, C.K. and V. Ramaswamy (2004). "The Future of Competition: Co-creating unique value with customers." *Harvard Business School Press*. 2004.
- Prahalad, C. K., (2012). "Bottom of the Pyramid as a Source of Breakthrough Innovations." *Journal of Product Innovation Management*, 29 (1), pp. 6-12.
- Prahalad, C.K and R. A. Mashelkar (2010). "Innovation's Holy Grail." *Harvard Business Review*, Vol. 88 (7/8), pp.132-141.
- Ramaswamy, V. and K. Ozcan (2014). "*The Co-creation Paradigm*." Stanford University Press.
- Radjou, N., Jaideep Prabhu and Simone Ahuja (2012). "Jugaad Innovation" Random House, India.
- Schomer, K.(2014). Getting to Mars through 'jugaad', Available at-<http://www.thehindu.com/opinion/opened/getting-to-mars-through-jugaad/article6479048.ece>, Accessed on 4 November 2014.
- Sheth, J. and R. Sisodia (2011). *The 4 A's of Marketing: Creating Value for Customer, Company and Society* New York Routledge.
- Singh, R., Vaibhav Gupta and Akash Mondal (2012). "Jugaad-From 'Making Do' and 'Quick Fix' to an Innovative, Sustainable and Low-Cost Survival Strategy at the Bottom of the Pyramid." *International Journal of Rural Management*, 8(1&2), pp. 87-105
- Sinha, V.(2014). "Mitticool: Son of the soil keeps things cool with his 'desi gadget.'" Available at-<http://www.hindustantimes.com/india-news/mitticool-son-of-the-soil-keeps-things-cool-with-his-desi-gadget/article1-1172621.aspx>, Accessed on 7 January 2015.
- Stevenson, J. and B. Kaafarani (2011). *Breaking Away: How Great Leaders Create Innovation that Drives Sustainable Growth and Why Others Fail*. McGraw Hill.
- Subrahmanyam, Saroja and J. Tomas Gomez-Arias(2008). "Integrated approach to understanding consumer behavior at bottom of pyramid." *Journal of Consumer Marketing*, 25 (7), pp. 402-12.
- Vaswani, L.K., R. Aithal, D.Pradhan and G. Sridhar (2005). "Rural marketing in the development paradigm." *International Journal of Rural Management*, 1(2).

Competitiveness and Sustaining Performance: Integrating Sales and Marketing

Pankaj M. Madhani

A b s t r a c t

Sales and marketing integration is important in reducing inter-functional conflict, creating customer trust, satisfaction and improving overall performance of organization. Hence, there is need to integrate sales and marketing by enhancing collaboration between them. A lack of cooperation between sales and marketing has the potential to damage the overall success of the organization. Sales and marketing research should not only focus on analyzing factors that detract sales and marketing integration, but also to establish symbiotic relationship between sales and marketing and identify facilitators of such integration in terms of necessary resources and capabilities required by the organization. This research works in this direction, and provides in-depth insights for enhancing sales and marketing integration by identifying major issues in sales and marketing relationship; studying various facilitators of sales and marketing integration and then suggesting two-stage research framework of sales and marketing integration.

Keywords: Sales; marketing; collaboration; integration; efficiency; effectiveness.



Dr. Pankaj M. Madhani
Professor,
ICFAI Business School (IBS)
IBS House, Opp. AUDA Lake
Science City Road, Off. S.G. Road,
Ahmedabad – 380 060, India
Tel : +91-79-654 30148, 654 30149
E mail: pmadhani@iit.edu

Sales and marketing integration may be important in reducing inter-functional conflict, creating customer trust, satisfaction and improving overall performance. Hence, there is need to integrate sales and marketing by enhancing collaboration between them. Accordingly, every organization should improve the relationship between sales and marketing as their integration helps organizations to outperform competition; create added value as well as customer satisfaction.

The major objectives of this paper are firstly; to identify major issues in sales and marketing relationship; secondly; to study various drivers of sales and marketing integration, and thirdly; to suggest two-stage research framework of sales and marketing integration. First stage of framework introduces sales and marketing as a symbiotic and complementary process which combines the strengths of sales and marketing by shifting the focus to the customer; and second stage of framework demonstrates how such

integration can leverage the strengths of sales and marketing, and meets the challenges of customer value creation in today's fast changing and highly competitive marketplace.

Literature Review

Sales and marketing are different functions within an organization and usually have different goal orientations (Homburg et al., 2008). The sales-marketing interface may exhibit many negative features and are characterized by poor co-ordination, miscommunications, conflict, noncooperation, signs of frustration, distrust and dissatisfaction with the other group's performance, disharmony, and poor understanding of each other's roles, which inhibits achieving the benefits of collaboration (Dewsnap and Jobber, 2002).

While sales and marketing are both independent and interdependent, they are not always seen as working collectively or collaboratively (Rosenbloom and Anderson, 1984; Alldredge et al., 1999). Many times, salespeople view marketers as being out of touch with reality (Lorge, 1999). This raises questions in their minds about marketers' credibility as strategy creators and in many instances; they ignore marketing initiatives (Aberdeen Group, 2002; Strahle et al., 1996). The sales and marketing relationship seems symbiotic and complementary, though in practice, coordinating the two functions is rarely an easy task (Smith, Gopalakrishna, and Chatterjee, 2006).

Procter & Gamble has also experienced poor coordination and problematic relationships between their sales and marketing departments (Shapiro, 2002). Superior customer value creation requires inter functional integration and such integration involves both interaction (that is formal and informal communication processes) and collaboration (involves the existence of shared goals, resources and activities, as well as mutual understanding) (Kahn and Mentzer, 1998). Improvements in collaboration and interdepartmental relations may reduce conflict as well as enhance the formulation of strategy (Menon et al., 1996). For success of the organization, market responsiveness and adaptability are important conditions and requires seamless integration of the organization's many functional parts. The overcoming of functional boundaries and (often) the development of cross-functional teams as important facets of customer focused organizations (Homburg et al., 2000).

Le Meunier-FitzHugh and Piercy (2007)- studied collaboration between sales and marketing in business-to business (B to B) setting and found that it is positively related to enhanced business performance. The research findings empirically established that a positive senior management attitude toward collaboration between sales and marketing, the reduction of interdepartmental conflict, the improvement of communications, the establishment of organizational learning, and effective market intelligence systems are important antecedents to effective collaboration between sales and marketing. Similarly, empirical study by Le Meunier-FitzHugh and Lane (2009) confirms that collaboration between sales and marketing has a positive and significant impact on both market orientation and business performance.

According to Corstjens and Corstjens (1999), a lack of cooperation between sales and marketing has the potential to damage the overall success of the organization. Both sales and marketing serve customers with sales traditionally performing tactical tasks such as contacting customers, executing marketing strategies, and closing the sale in the field and marketing entrusted with providing support to salespeople and building consistent brand image in the marketplace (Matthyssens and Johnston, 2006).

There is a shift from focusing only on how firms can create competitive advantages through increased productivity within the value chain towards a perspective on how they can increase the quality of their customer relationship via better cross functional teamwork (Rayport and Jaworski, 2004). The sales and marketing integration enhances customer trust, satisfaction as well as customer retention and maximize Customer Lifetime Value (CLV) (Madhani, 2015). The creation of superior customer value through an effective sales and marketing relationship provides competitive advantage to the firms (Guenzi and Troilo, 2007). Sales and marketing interaction is important for overall performance and growth of business as their productive relations is linked to improved productivity, competitiveness, superior value creation, and market performance (Tjosvold, 1988).

Many researchers found sales-marketing interface as a rather unexplored area with either limited research study (Dawes and Massey, 2005) or not researched systematically and deeply (Homburg et al., 2008). Both sales and marketing

may be following their own agendas, creating conflict, coordination problem, and ultimately great tension between the two groups. These issues can negatively characterize the interface between sales and marketing and may lead to conflict that is detrimental to collaboration (Dewsnap and Jobber, 2000). However, improved sales and marketing interaction has a positive impact on corporate growth as well as on new product development (Ernst et al., 2010). This research works in this direction, and provides in-depth insights for enhancing sales and marketing integration. Sales and marketing research should not only focus on analyzing factors that detract sales and marketing integration, but also to establish symbiotic relationship between sales and marketing and identify facilitators of such integration in terms of necessary resources and capabilities required by the organization.

Sales and Marketing Conflict: Major Causes

Sales is interpersonal, push driven, more tactical, and has a short-term focus while marketing is analytical, pull driven, more strategic and has a long-term focus. Following are major components of conflicts between sales and marketing:

A) Separate Identity

Although sales and marketing are some times considered being part of the same function with the same objectives, in reality they are often managed differently (Olson et al., 2001). Sales and marketing are usually structured and managed as two distinct departments with independent goals (Workman et al., 1998). Although there may be advantages in locating sales and marketing in close proximity (Dewsnap and Jobber, 2000), in many organizations sales and marketing are separated, sometimes geographically (Workman et al., 1998). Both sales and marketing dispute over roles and resources like the legendary feud. Sales and marketing integration is one of those corporate considerations more honored in the breach than in the observance. As sales people complain about what they see as marketing trying to rule from its ivory tower. On the other hand, marketing moans about off-brand messaging and lack of feedback from the sales field. Sales begs for more powerful

corporate messaging delivered through public relations, advertising, and trade show exposure. Marketing, meanwhile urges sales to work harder on solution selling and be more proactive in sharing best practices.

Many organizations do not have a clear idea how sales and marketing should interact and relate (Krol,2003). Problems arise with the sales and marketing interface when large, separate departments become independent silos that do not operate well together (Rouzies et al., 2005). In short, sales and marketing suffer much too often from a major disconnect, worsened by mutual distrust and a lack of respect. The strains between brand teams and sales teams fall into two main categories: economic (each fighting for a larger share of budget) and philosophical (the two functions attract very different types of people who achieve success by spending their time in very different ways).

B) Conflict of Time-frame

Traditionally, one of the most cited reasons of conflict between sales and marketing is the difference in the time frame they refer to in the processes of goal setting, resource allocation and performance evaluation (Strahle et al., 1996). Such differences obviously translate into conflicting priorities and inconsistent activities because sales primarily focuses on relationships, tactical and short-term objectives such as revenue targets (Cespedes, 1994) while marketing are highly analytical, data oriented, long-term focused and believe in building competitive advantage for the future and hence mainly adopts a strategic, long term perspective such as brand building. Several researchers have also highlighted the difficulties created by the short-term orientation of sales goals conflicting with the long-term orientation of marketing (Montgomery and Webster, 1997).

C) Communication Flow

Cross-functional integration requires employees from different departments of the organization to

communicate and interact, in order to exchange work, resources, and assistance (Ruekert and Walker, 1987). Sales often complain about the lack of timely availability of information from marketing (Cespedes, 1994), while marketing reply that the information in which they invested time and money to gather it are not being used by sales (Moorman et al., 2007). To enhance bidirectional information flow among the different functional areas and decrease conflicts in communication; increased cross functional integration; more number of focused meetings and documented information exchange are needed (Kahn and Mentzer, 1998).

Some of the problems encountered in the relationship between sales and marketing include the following: failure of sales to follow-up on leads provided by marketing; duplication of leads leading to redundancy and inefficiencies; and providing incomplete leads. Both sales and marketing benefit from closed-loop communication flow and feedback mechanism. Marketing will be able to update its database and statuses; and will be able to assess the effectiveness of its marketing programs, clearly identifying those that work and those that don't. Sales will improve its efficiency by eliminating the need to work on duplicated leads and will be able to prioritize leads more effectively and efficiently.

D) Goal Difference

The significance of goal differences on the effectiveness of the sales and marketing interface was highlighted by Guenzi and Troilo (2006) as it is one of the causes of serious lack of trust, conflict and ultimately a wedge between sales and marketing.

Sales tend to think in terms of sales volume rather than profits. They aim to increase current sales to meet quota commitments and to achieve good commissions and bonuses. They are usually not attentive to profit differences among different products or customer classes unless these are

reflected in compensation. As such they are oriented toward existing products, markets, customers, and strategies and don't tend to think about future product/market expansion strategies. Sales has knowledge about individual accounts and the factors bearing on a specific sales transaction. As they focus on individual customers rather than market segment, they are less interested in developing strategies for market segments. Sales prefer to try to sell to customers instead of developing plans and strategies and working out methods of implementation as they love field work rather than desk work.

In contrast, marketing plans sales volume around profits. They aim to plan product mixes, customer mixes, and marketing mixes to achieve profitable volume and market shares. Marketing focuses on long run trends, threats, and opportunities. They study how the company can translate these into new products, markets, and marketing strategies by offering superior value to the most profitable segments that will assure long-term growth (Kotler, 1977).

Sales think that marketing doesn't understand their customers. Brand teams think that sales don't take them seriously. Sales is typically not well integrated with other elements of the marketing mix and there aren't any high-quality, fact-based discussions or feed back from the field during marketing planning sessions. Marketing develops brand plans but sales weren't part of the critical planning process so they put little faith in the plan's success. Because the sales team isn't confident in the plan, they don't implement it, and, of course, it fails and reinforces their lack of confidence in marketing. The goal differences may be a source of inter departmental friction and its resolution are often the responsibility of senior management of the organization. The goal differences may be attributed to a lack of understanding of the importance of coordination on the part of senior management (Colletti and Chonko, 1997).

Enhancing Sales and Marketing Integration: Major Facilitators

Following are major facilitators i.e. drivers that facilitate sales and marketing integration.

A) Top Management

Top management will need to underscore the benefits of over-coming barriers between sales and marketing. As long as these cross-functional areas see more benefit to cooperation than to narrow self-serving behavior, the win-win view will benefit both of them. Top management attitudes towards coordination, communications, inter-functional conflict, organizational learning, and market intelligence will be antecedents to collaboration between sales and marketing, and may form the basis of a management strategy to improve the interface. Improvements in collaboration, inter-functional relations, and communication quality may reduce conflict, as well as enhance the formulation of strategy.

Top management should take responsibility for the complex relationship between sales and marketing and to improve the willingness of sales and marketing to collaborate effectively (Holden, 1999). Many times, top management may not be focused on establishing coordination between sales and marketing areas (Piercy, 2006). The goal differences have major impact on the effectiveness of the sales and marketing interface (Homburg and Jensen, 2007) and become a source of inter-functional friction. The goal differences which are often the responsibility of top management may be attributed to a lack of understanding of the significance of coordination on the part of top management (Colletti and Chonko, 1997).

To improve sales and marketing integration, top management emphasizes hiring and promoting people in sales and marketing functions who are open-minded and team players. Top management has the ability to create a culture of cooperation in the organization that encourage formal and informal communications between sales and

marketing and thereby build an environment where collaboration between them can develop (Lucas and Busch, 1988). Similarly, top management should formalize overlapping activities in the organizations that require inter-functional coordination and should clarify roles that are mutually dependent and have potential for role ambiguity (Menon et al., 1996). To achieve this goal they need to promote mutual understanding, and align sales and marketing objectives, while not detracting from their independence. A lack of top management support for collaboration is frequently a major barrier to integration (Simkin, 2002).

The top management plays a critical role in reducing inter-functional conflict by aligning goals and activities of sales and marketing. If top managers' support for improving inter-functional relationships is not forthcoming then improvements are unlikely to be made (Piercy, 2006). If sales targets are set jointly then the overall direction and individual contributions to achieving these objectives can become explicit and encourage greater cooperation between individuals and departments. According to Dewsnap and Jobber (2000), top management who are focused on improving sales/marketing integration will promote mutual understanding and greater cooperation.

Top management may consider sales and marketing functions to be part of the same department (Munn, 1998) and this may lead to a lack of focus on such relationship and how it can be facilitated. If top management fails to coordinate sales and marketing because of poor planning and setting independent goals, this may increase conflict between the two functions. Similarly, the inter-functional conflict can be reduced if top management overtly support coordination and intervene to help prevent inter-functional conflict developing (Smith et al., 2006). Unless top management is focused on removing barriers to sales/marketing collaboration, it is unlikely that it will be achieved by itself as sales/marketing conflict is considered as endemic. Inter-functional conflict between sales and marketing

interface such as working at cross purposes, low support, and obstructive behavior reduces collaboration and operational effectiveness.

Through leadership and staff empowerment, top management are responsible for establishing the culture of the organization, enabling them to create and execute strategies to achieve organizational objectives. According to Viswanathan and Olson (1992), key role of top management is to create the environment and culture of the organization.

B) Organization Culture

Organization culture helps resolve inter-functional dilemmas that can arise in organizations. Sales and marketing collaboration requires the two functions to share information and adjust their activities to accommodate each other's concerns and perspectives. These are likely to be facilitated by organizational culture that places a premium on sharing and adapting. The cultural differences in the interdepartmental interface may create norms of behavior such as lack of sharing; however, positive interdepartmental cultures may facilitate cross-functional working and sharing, joint participation and greater collaboration between sales and marketing. The differences in culture and perceptions may be based on the fact that most sales teams have no other option but to work away from the main office, which leads to the sales groups bonding tightly together, and often excludes links with the office staff such as marketing, which can lead to difficulties in communications.

This physical separation can aggravate the culture clash between the two groups and may lead to accusations of encroachment on each other's territory. The existence of cultural tension between sales and marketing supports the view that organizations are rarely made up of one culture (De Long and Fahey, 2000). Organizations are consisting of subcultures, including cultures of different functional units and cultural differences of individual (Martin, 2002). The simultaneous

existence of multiple cultures within organizations is a significant factor to give rise to considerable tension between functional areas, and individuals. The sales and marketing had quite different norms, philosophies and culture leading to differing levels of conflict. Sales and marketing as a function needs its own culture for successful performance, whilst also requiring an ability to relate to other functional cultures (Beverland, 2001).

These cultures are not identical, but there must be some crossover if the two functions are to work together. This shared culture provides the context for cross-functional problem solving, interaction and collaboration, the rules by which that collaboration will take place. According to Stank et al. (1999), information sharing is also critical to successful collaborative efforts. The culture of the organization will also play an important role in how people and groups within that organization interact with each-other (O'Reilly et al., 1991; Chatman, 1991; Sorensen, 2002). Functional members resist sharing sensitive information without knowing for sure how other members of the organization will behave in the future. As information technology (IT) facilitates formal and informal communications, sales and marketing integration relies on IT capabilities to enable linkages across departments resulting in tighter integration.

C) IT Infrastructure

IT infrastructure serves as a vital backbone linking functional areas throughout the organization and facilitates tighter internal integration (Brah and Lim, 2006). The sales and marketing collaboration requires the two functions to share information and adjust their activities to accommodate each other's concerns and perspectives. Sales force automation (SFA) can help and assure salespeople that valuable information is not lost and it might enhance coordination (Engle and Barnes, 2000). SFA systems reduce the sales force efforts to generate periodic reports, whereas computing devices with internet connectivity encourages timely interactions between sales and marketing. By connecting marketing automation/ analytics

software (e.g. HubSpot) and Customer Relationship Management (CRM) software (e.g. Salesforce), marketing is able to send additional information about leads to sales, which will assist sales in making calls and increase close rates. On the other end, sales is able to provide feedback about which marketing programs are working vs. those that aren't.

Despite these benefits, there is considerable evidence that salespeople often do not adopt such systems (Erffmeyer and Johnson, 2001; Speier and Venkatesh, 2002). It was reported that in IBM, the global computer giant sales and marketing departments operated independent of one another. Sales was worried only about fulfilling product demand, not creating it while marketing failed to link advertising expense to actual sales outcome. Thus, sales obviously could not see the value of marketing efforts. As sales and marketing were poorly coordinated, marketing's new product launch often came at a time when sales was not ready to capitalize on them (Kotler et al., 2006). When both sales and marketing have access to product and market information, setting up information networks between these two departments might facilitate more positive information transfers (Moenaert and Souder, 1990). Hence, IBM has developed a special software programme that gives its sales force, computer access to the same cost data provided to the marketing department. That way, the profitability of every transaction can be determined by the IBM field sales rep (Anderson et al., 1999).

Conflicts between sales and marketing may also arise due to mismatch of the IT platforms used by each function, especially if sales and marketing are using different data sources for discussions and therefore have different viewpoints (Cespedes, 1994). Often each group's critical data is housed in separate data silos in separate systems, and sharing the data becomes a great challenge. Sales people are normally impatient with learning and using IT tools that are complicated to operate (Rouzies et al., 2005). They are more comfortable in

the field with their customers than in front of their PDAs, tabloids or computers. Although, marketing people tend to be more analytical in general, they too resent IT tools that take a long time to learn or use.

D) Performance Measurement and Reward System

Performance measurement and reward system is an effective internal process for enhancing functional collaboration. Incentive and reward systems have been reported to have a positive impact on integration of marketing with other functions (Menon et al., 1997). Existing within a functional structure, sales and marketing departments are evaluated on the performance of their functional or individual goals. A problem arises where the traditional evaluation and reward mechanism for each function is mutually exclusive with that of the other function. Each functional department aims to maximize its own achievement and hence tends to pursue the strategies and activities that can best meet their own evaluation criteria – there by, ensuring financial gains, promotion, rewards and status for the department (Malhotra and Sharma, 2002). The major hurdles with internal integration efforts of various functions in the organization may be the result of disjointed policies and practices, misaligned measures and rewards (Bowersox et al., 2000).

Differences in reward structures between different functional areas may cause serious coordination problems (Fincham and Rhodes, 1999) and lead to inter-functional conflict. Sales and marketing have similar aims (e.g., to increase market penetration and enhance sales), but they have different goals frequently set by top management, against which their performance is measured. Marketing may wish to pursue a premium pricing strategy to build and maintain premium positioning, but this may conflict with sales' discount pricing to meet their sales targets. This difference in focus between sales and marketing is reinforced by the incentives typically used by organizations. The

incentives for the sales force are normally related to sales of all products made to customers in a territory, whereas the reward and recognition for marketing (product managers) are based on sales and profitability of the specific products for which they are responsible. Rewards alignment reduces inter-functional conflict and increase collaboration between sales and marketing (Hauser et al., 1994; Pinto et al., 1993).

Traditionally, sales force is rewarded through a basic salary and commission (or bonuses) based on sales success rather than on achieving super-ordinate goals (Fuentelsaz et al., 2000), and the most widely-used measure of sales effectiveness is total sales volume (Baldauf and Cravens, 1999). Most organizations reward marketing on the performance of their department in isolation from any other department's goals (Coombs and Gomez-Mejia, 1991) and marketing group, often receive bonuses for increases in market share, regardless of how they were achieved (Turner, 1979). Sales and marketing may therefore be rewarded for behaviors and outcomes that are inconsistent with each other's objectives and these contradictory competitive goals can reduce cross-functional collaboration and increase conflict. The differences between sales and marketing perceptions of performance may be a cause of dissatisfaction between them.

The aligned rewards improve sales and marketing integration. If sales personnel are compensated for achieving a super-ordinate goal such as increasing organizational profits, this provides an incentive to be more collaborative and further increase profitability (Gomez-Mejia and Balkan, 1989). Sales and marketing rewards should be aligned so that they share responsibility for revenue objectives. Similarly, Strahle et al. (1996) strongly recommended that sales bonus schemes should be linked to implementing marketing strategy successfully. Marketing rewards may be linked to increasing profitability or the successful introduction of new products/brands to the market place (Allredge et

al., 1999), but they are seldom rewarded for helping to achieve specific sales targets.

Research Methodology

A two stage methodological approach is adopted in this research paper. The first stage involves development of a conceptual basis for sales and marketing integration. In the second stage, it establishes relationship between sales and marketing integration by identifying their symbiotic and complementary role. Then subsequently research focuses on developing sales and marketing integration model to understand and emphasize how organizations enhance competitiveness.

A) Development of Conceptual Basis

Market information needs to be integrated and disseminated back to both sales and marketing to facilitate the organization's adaptation to changing environments and contribute to greater sales and marketing effectiveness (Wood and Tandon, 1994). In many situations, even when market intelligence is available, the company's organizational structure and internal management processes may fail to facilitate prompt and meaningful market information exchange (Evans and Schlacter, 1985). Market intelligence may contribute to collaboration as it can underpin cooperation and provide a structure for sharing information and improving communications. Both sales and marketing have access to product and market information and setting up information networks between these two departments might facilitate more positive information transfers (Moenaert and Souder, 1990).

When sales and marketing functions synchronize their strategic and tactical activities, it creates, delivers, and communicates superior customer value (Slater and Olson 2001). However, in many organizations, strategies are created by marketing without input from sales; the salespeople are introduced to these new strategies only when marketing hand, them over for implementation

(Kotler et al., 2006). Consequently, many sales people do not support the strategies marketing develops because they feel these strategies are inappropriate, ineffective, irrelevant, or disconnected from reality (Aberdeen Group, 2002).

Sales and marketing activities are closely coordinated, with salespeople collecting valuable customer-related information and passing it to their marketing and marketing using the information to create customized products and programs, and thus increasing value for customers (Madhani, 2012). It is well known fact that marketing needs sales and sales needs marketing; however, such 'need' does not equate to a successful integration between the two groups as conflict and distrust are more common. Such a dynamic can hurt the top line and bottom line of organization. In recent CMO Survey, top marketers were asked to describe how their organizations structure the marketing-sales relationship. 6.5% stated that sales is within marketing (marketing has the power), 11% noted that marketing is within sales (sales has the power) and 70.3% indicated that sales and marketing work together on an equal basis (The CMO Survey, August 2015). Hence, as equal partners, sales and marketing must find a way to work together as shown below in sales and marketing integration model.

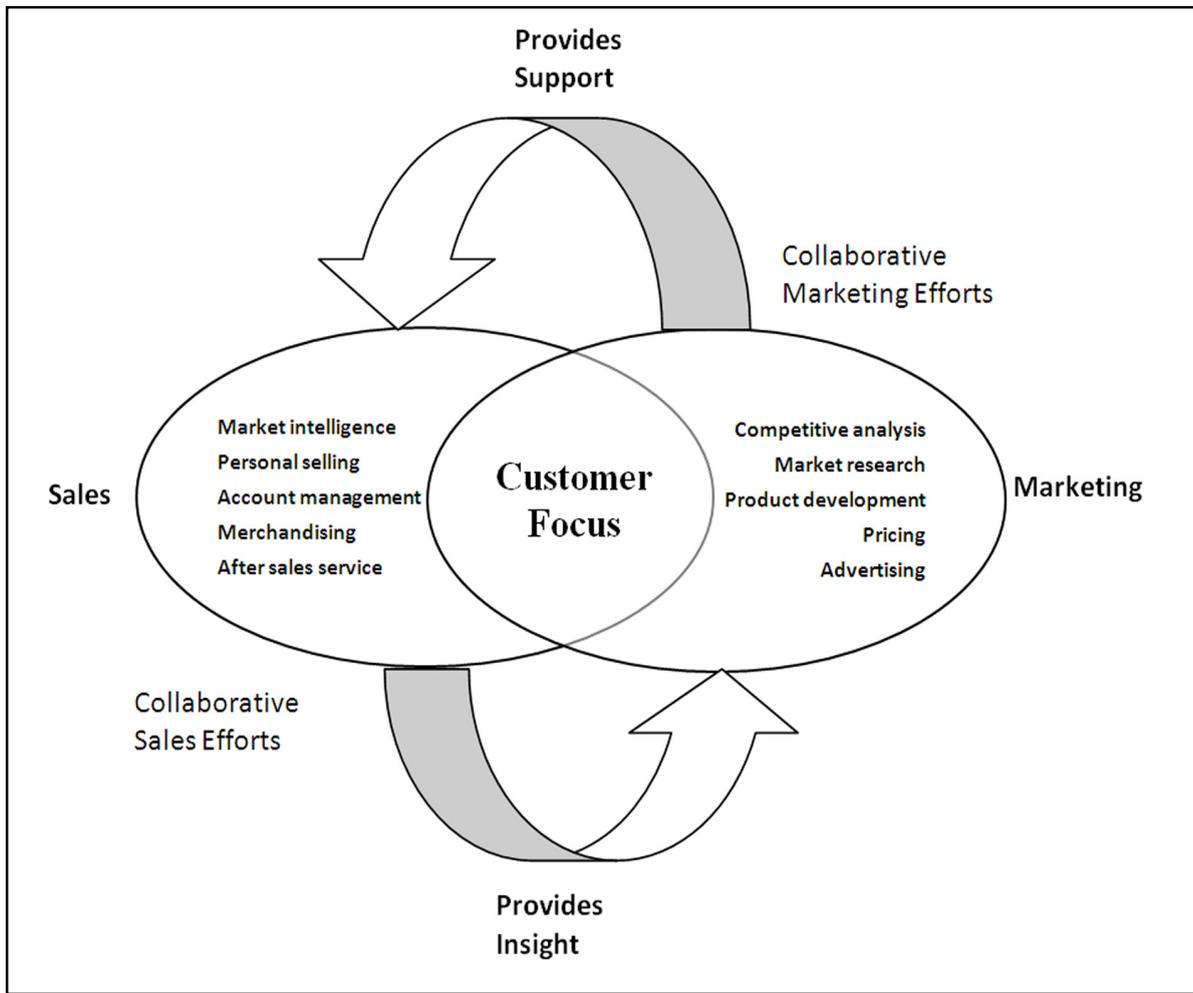
B) Development of Sales and Marketing Integration Model

1) Sales and Marketing Integration Model: Symbiotic and Complementary Relationship

A high level of integration between sales and marketing could make the organisation very responsive to market dynamics and react to changes in the market. Organizations who respond effectively to market turbulence are more likely to build competitive advantage over rivals

who do not. It is necessary that organizations focus on how marketing should work alongside sales and how marketing data should flow from the marketing to sales and back for enhancing customer value proposition. When sales and marketing activities are closely coordinated, sales collect valuable customer-related information such as changing customer needs as well as information on new developments from competitors. This information can be analysed by the marketing to develop appropriate marketing strategy in terms of customized products and programs, which sales needs to translate into action by executing it for increasing value for customers. Thus, marketing through its market research and the sales through its market intelligence and direct customer contact serve as repositories of crucial customer and competitive intelligence.

The Venn diagram in Figure 1 illustrates the symbiotic and complementary relationship between sales and marketing. The activities in the oval on the left are primarily undertaken by the sales with input from marketing and the activities in the oval on the right are primarily undertaken by the marketing with input from sales. The customer focus is shown in the intersection of the two ovals and can be performed effectively only through a coordinated effort between sales and marketing. Thus, all of the activities shown in Figure 1 require an effective coordination between sales and marketing. Sales and marketing are highly interdependent, as marketing rely on sales for information on key customers, intelligence on competitors, and ideas for new products. Sales implement marketing's strategies at the operational level and also relies on marketing for marketing research reports, advertising and sales support materials for use in the field.



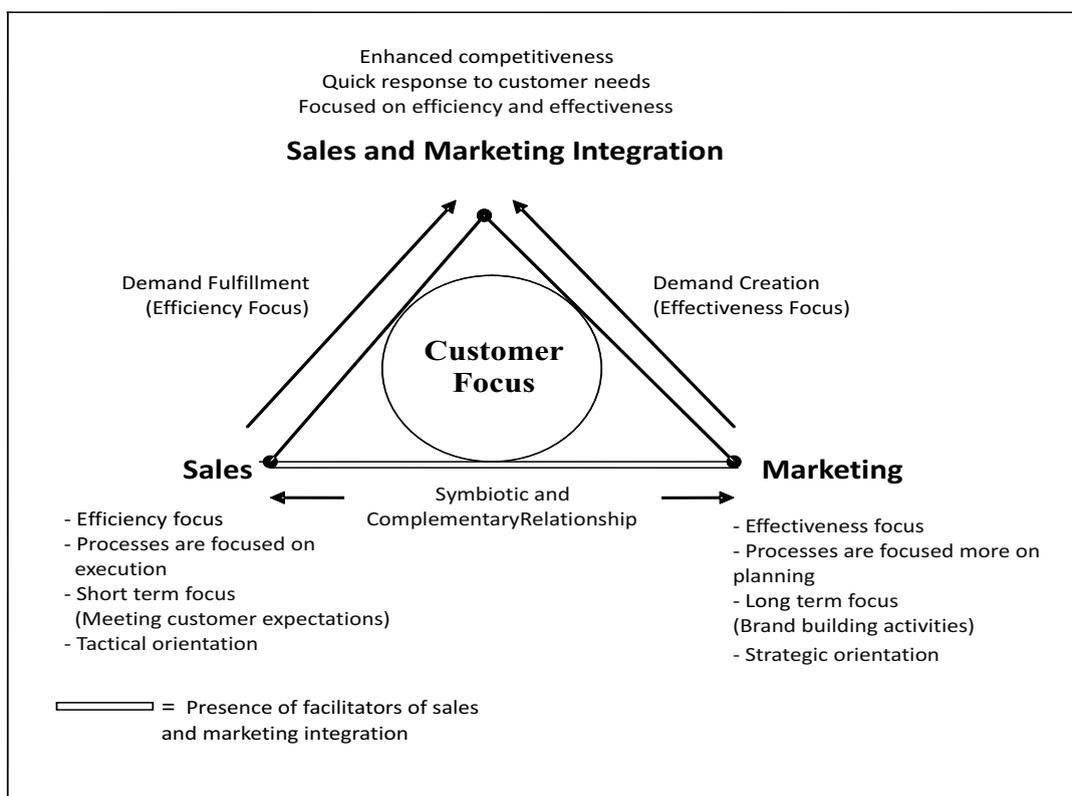
(Source: Model developed by author)

Figure 1: Sales and Marketing Integration: Symbiotic and Complementary Relationship

2) *Sales and Marketing Integration Model: Enhancing Competitiveness*

Sales and marketing integration facilitates firms to foster long-term relationships with customers

based on customer satisfaction, trust and loyalty. Sales and marketing integration focuses on meeting customer needs and provide greater value to its customer than competitors.



(Source: Model developed by author)

Figure 2: Sales and Marketing Integration: Enhancing Competitiveness

By removing the barriers that typically exist between sales and marketing, and reinforcing sales and marketing collaboration in presence of facilitators of sales and marketing integration allow for greater visibility into the individual goals and achievements of sales and marketing objectives. As shown in Model of Figure 2, by working together rather than separately, sales and marketing are able to leverage each other's knowledge and data, which results in more efficient lead handling, and ultimately more sales and better performance. When sales and marketing are integrated, each team has a role from the top of the funnel, middle of the funnel, bottom of the funnel – that entire transition. By integrating sales and marketing, each department can provide the other with insightful information, which can lead to generating more leads and closing more sales. In order to function as efficiently as possible, sales and marketing have to work with each other rather than alongside each other as they have symbiotic and complementary relationship.

How to Achieve Sales and Marketing Integration?

Organizations achieve sales and marketing integration by emphasizing shared responsibilities, identifying key customers, establishing common language, integrating customer information, job rotation and incentives design.

A) Shared Responsibilities

Sales and marketing need to change their mind set by implementing Service Level Agreement (SLA) and understand that they are all on the same side, working together to understand and satisfy the needs of the customer. SLA is a statement of the commitment of sales and marketing in order to support each other. Essentially, sales and marketing will both be defining what they will accomplish so that both parties will benefit from each other's support. Marketing will provide the number of high-quality leads required to meet a quota set by the company and hence achieve the company's revenue target, while sales will be

responsible for quickly following up on leads that will generate the required revenue. Sales then reciprocate by figuring out how many times they must make contact or engage to every lead, so they will not be wasted.

Sales and marketing responsibilities are designed around the customer buying process. Sales and marketing should be organized around the steps that the customer goes through to become exposed to, build knowledge about, form purchase intentions for, and ultimately purchase the company's products and/or services. This way both functions work together symbiotically and complement each other to meet the customer needs during each stage of buying process, to support customer and improve overall performance.

If sales and marketing don't have the same expectations as to what qualifies as a **sales-ready lead**, organizations lose more potential sales and/or waste time trying to close leads that never should have been passed to sales in the first place. When you clearly define what goals and metrics each department is responsible for, it is easier to see how each supports the other in achieving their goals. It is important to **hold marketing to a specific, numeric goal**, similar to that of the sales department, so everyone is held accountable and has the same motivation for reaching their established goals. Be sure to reevaluate SLA on a regular basis in order to keep up with performance and to be sure sales and marketing are constantly striving for better results.

B) Identify Key Customers

In many organizations, sales and marketing has not focused their joint attention on the most valuable customers and hence become major cause of conflict. Sales people need to meet their quotas and if those quotas don't include the organization's most valuable customer, sales will not be prospecting or acquiring the right customers. Marketing can help identify these customers, develop materials to do so, and service sales as it closes these deals. This priority can help facilitate cooperation and create a unifying objective for the sales and marketing.

When sales receive non-routine inbound leads, they are inevitably going to feel frustrated that inbound leads aren't farther along in the sales funnel and therefore require more effort and time to close. When this happens, there's a good chance they will simply choose not to work those leads and

instead focus on the traditional leads because they're easier and will result in commissions more quickly. One way to solve this issue is to change the structure of sales team and assign someone else to work the inbound leads. This type of inside sales rep position has proven incredibly effective in working early-stage leads and nurturing them to the point that they are ready to be handed over to your outside sales reps and closed. Assigning one or two people to specifically work your inbound leads, creating a commission structure that aligns with inbound leads' longer buying horizon, ensuring a smooth hand off from marketing, and training them on how best to engage with inbound leads will improve your lead-to-customer conversion rates and generate greater ROI from your inbound marketing strategy.

If sales people have the greatest insight into customers' needs, but marketing people are charged with creating content, then clearly sales needs to have greater involvement in content creation. Marketing feels like they do all the work to create tools and collateral to enable sales and get negative feedback or worse, nothing at all. "They send leads or they create content, and then they hear nothing. It's like it goes into a black box," "Marketing is out of sight and out of mind until sales needs more leads to fill the pipeline." Then, marketing scrambles to keep up with demand and produces massive amounts of leads, but those leads aren't qualified, and sales complains that they're not any good. Salespeople want winnable opportunities. They want to sell and bring solutions to their clients. They don't want to spend time prospecting. They want to close deals and make their commission. In many organizations, marketers don't include salespeople in the development of the programs, content, and communications they use to sell. They wait until the last minute to get sales buy-in without getting their input during the entire content development process.

C) Establish Common Vocabulary and Language

One of the points of contention between sales and marketing is that they speak different languages: sales only care about the numbers, while marketing is about creating leads. According to sales, marketing comes up with leads that are of terrible quality. Marketing, on the other hand, argues that they fail to meet their goal because sales does not work on their leads. On the surface, this does seem to be the case.

However, if you look deeper, you will realize that what the two functions boil down to is the same: revenue generation and revenue growth. Marketing will generate the leads that, in turn, will generate sales. Marketing should not just focus on creating leads randomly. They should be sales-ready leads. A sales-ready lead is one that generates a high level of interest. A lead that has a low level of interest and a poor fit must be avoided at all costs, since they will not make any money for the company. If the lead is a great fit, but generates little interest, efforts must be made towards stimulating interest so as to increase it. If the lead has high interest and proves to be a great fit, it is one that must be followed up quickly as it is a sales-ready lead.

By focusing on customer groups and not product groups, organizations can design process around the customers. This puts sales and marketing together into groups to serve segments of customers. The idea puts the function the employee represents such as sales or marketing into the background while bringing the activities and purpose of that function into the foreground. This aligns all efforts to better serve the customer and limits finger pointing, power games, and turf wars.

D) Integrate Customer Information

When sales and marketing know different things about the customer, integration strategy is weakened. Both functions have different customer experiences, so it is inevitable that they develop unique and varying insights. Ideally, these unique sources of insight would be shared across the sales and marketing. Salespeople, in particular, have an enormous amount of unfiltered customer exposure. Sharing databases and co-locating sales and marketing people are two other ways to facilitate this type of interaction.

All key information should be synchronized between sales and marketing by making information system fully automated so that it will be accessible by both teams. When sales and marketing are integrated organizations often use common dashboards that contain reports that are relevant to both teams. The primary purpose of dashboards is to display the progress or give status updates, and enable the teams to take the necessary corrective steps, if necessary. In the case of Marketing Dashboards, the objective is to measure and communicate the progress in accordance with the terms set forth on the SLA between sales and marketing. Through the marketing dashboards, teams can check daily whether they are on track in achieving their targeted number

of leads. Sales, on the other hand, are seen to use Sales Dashboards, which are usually presented by day or by week. This dashboard displays the progress of the sales team towards the goal and making comparisons with the previous period.

IT tool facilitates organizations in measuring their performance at each stage of the sales and marketing funnels. Share this data with sales and marketing, ideally using a dashboard, so everyone can see their progress towards meeting the goals established by the SLA. By measuring and sharing the data, each department can determine what is and isn't working, or where there is room for improvement.

E) Job Rotations

Job rotation is considered as a meaningful way to improve knowledge sharing across different functional areas. Organizations improve employee motivation, productivity, flexibility and change management with job rotation (Maxwell, 2008). Hence, organizations must rotate sales and marketing people whenever feasible. Some sales and marketing departments may experience role ambiguity and a lack of understanding of each other's roles (Cespedes, 1993). To get a better understanding of each other's functions, sales team may attend some marketing meetings and, reversely, marketing to go some time to the field with the sales team. Another option is to hire professionals who have previously worked in sales for marketing positions or vice versa.

Cross functional teams, which focus on common organizational goals rather than individual goals of each function, solve organizational conflicts caused by different goal orientations (Maltz and Kohli, 2000). A joint department under a single manager will improve collaboration by allowing bridges to be created between the sales and marketing functions, communications to be improved, activities aligned, and conflict reduced (Oliva, 2006). Similarly, when an executive board member jointly heads sales and marketing functions, in the organization, it leads to tighter integration of the sales and marketing (Lorge, 1999).

Each group undervalues the other's contributions and hence both stumble when they are out of synchronization, and performance suffers. People become functionally expert in just their own jobs so they don't develop an appreciation for what other people do or how they can affect their work. This makes it difficult to establish cross-organizational relationships. If marketing is going to help sales, it is good

to understand the salesperson's experience, first hand.

Although less common in most organizations, asking salespeople to spend time in marketing could also facilitate cross-fertilization and integration.

F) Design Individual and Shared Incentives

Binding sales and marketing together with shared incentives can help pull the organization in one direction. For example, rewarding both functions for converting leads aligns marketing's efforts with sales' goals and ensures that sales acts on marketing's lead-creation activities. For many organizations, performance measurement, reward system and structure frequently discourage and sometimes even obstruct the communication and collaboration between the sales and marketing functions that is essential for effectively serving customers. To be successful, the focus of rewards must be compatible with the tasks and structures laid down for the organization (Child, 1985). However, in many organizations, sales and marketing are being pulled in two different directions by independent goals and reward systems (Alldredge et al., 1999).

When sales and marketing are rewarded only for their own departmental performance, their rewards are not aligned. Conversely, when these departments are set super-ordinate goals and their reward system recognizes joint performance such as overall organization profits, their reward structures are aligned, and this in turn should both decrease inter-functional conflict, and increase collaboration in the sales and marketing interface. Clear linkage between performance and reward system will motivate the desired behavior and encourage the sales and marketing to improve shared processes that benefit overall organization. Information sharing is required to signal the sales and marketing members that rewards are available, timely, equitable, and performance-contingent. On the sales side, the size of the reward can be based on increased sales, less price markdowns, increased inventory turns, less stock-outs, reduced inventory, and lower operating costs. On the marketing side, the size of the reward can be measured in terms of sales support, and strategy formulations.

Managerial Implications and Conclusion

Each functional area within an organization may have a different attitude when it comes to sharing information.

However, only when the functional areas of the organizations are consistently willing to share the information will lead to better decision making. Sales and marketing integration results in to low cost per qualified lead, low cost per opportunity, improved response rates and revenue per campaign type, high conversion rates from each stage of revenue cycle, more marketing qualified and sales accepted leads and ultimately increased sales productivity. According to a 2011 study from the Aberdeen Group, highly aligned marketing and sales organizations achieved an average of 32% year over year revenue growth, while their less-aligned competitors saw a 7% decrease in revenue. However, only 8% of companies believe they have strong alignment between sales and marketing (Forrester study, 2011). According to Sirius Decision research report, B2B organizations with tightly aligned sales and marketing operations achieved 24% faster three-year revenue growth and 27% faster three-year profit growth.

Organizations with tightly aligned sales and marketing functions enjoyed 36% higher customer retention rates. They also experienced 38% higher sales win rates (MarketingProfs). When sales and marketing teams are in sync, companies became 67% better at closing deals (Marketo). According to CMO Council, 38% of Chief Marketing Officers (CMOs) say that aligning and integrating sales and marketing is a top priority for 2014. B2B companies' inability to align sales and marketing teams around the right processes and technologies has cost them upwards of 10% or more of revenue per year (IDC). It's important to develop a frame of reference of how sales and marketing can support each other and work together throughout every stage of the buying journey.

The enduring disconnects between sales and marketing function is a recurring problem in the organizations and may seriously challenge the organization's opportunities to create superior customer value. Both improving collaboration and reducing conflict between sales and marketing should be a goal for top management, as it plays a crucial role in reducing and overcoming inter departmental conflicts, e.g., by generating a common culture and introducing joint processes. As sales and marketing operates at a sub-optimal level due to deeply embedded cultural paradigms, role of top management become crucial in

removing barriers between these two functions. The sales-marketing relationship is a complex one, consisting of many different elements. For collaboration between sales and marketing to work in the organization, an underlying cultural shift needs to take place.

In order to ensure effective collaboration between sales and marketing, members of both functional areas are encouraged to clearly define mutual objectives and associated performance measures and link their performance and reward systems with decision synchronization, information sharing, and incentive alignment. Incentive alignment refers to the process of sharing costs, risks, and benefits among the participating members. IT resources are valuable resources that can be used to improve internal communication and enhance organizational capabilities. This research also emphasizes role of various facilitators in enhancing sales and marketing integration and provides various frameworks for sales and marketing integration to understand its mechanism as well as its positive impact on performance.

REFERENCES

- Aberdeen Group (2002). "Bridging the divide: process, technology, and the marketing/sales Interface." *Marketing View Point*, 15(10), 1-12.
- Allredge, K. G., T. R. Griffin, and L. K. Kotcher (1999). "May the sales force be with you." *The McKinsey Quarterly*, 36(3), 110-121.
- Anderson, R.E., A.J. Dubinsky, and R. Mehta (1999). "Sales managers: marketing's best example of the Peter principle." *Business Horizons*, 42(1), 19-26.
- Baldauf, A. and D.W. Cravens (1999). "Improving the effectiveness of field sales organization: a European perspective." *Industrial Marketing Management*, 28(1), 63-72.
- Beverland, M.B. (2001). "Contextual influences and the adoption and practice of relationship selling in a business-to-business setting: an exploratory study." *Journal of Personal Selling and Sales Management*, 21(3), 207-215.
- Bowersox, D.J., D.J. Closs and T.P. Stank (2000). "Ten mega-trends that will revolutionize supply chain logistics." *Journal of Business Logistics*, 21(2), 1-15.
- Brah, S.A. and H.Y. Lim (2006). "The effects of technology and TQM on the performance of logistics companies." *International Journal of Physical Distribution & Logistics Management*, 36 (3), 192-209.
- Cespedes, F.V. (1994). "Industrial marketing: managing new requirements." *Sloan Management Review*, 35(3), 45-60.
- Cespedes, F.V. (1993). "Coordination sales and marketing in consumer goods firms." *Journal of Consumer Marketing*, 10(2), 37-55.
- Chatman, J.A. (1991). "Matching people and organizations: selection and socialization in public accounting firms." *Administrative Science Quarterly*, 36 (September), 459-484.
- Colletti, J.A. and L.B. Chonko (1997). "Change management initiatives: moving sales organizations to high performance." *Journal of Personal Selling and Sales Management*, 17(2), 1-30.
- Coombs Jr., G. and L.R. Gomez-Mejia (1991). "Cross-functional pay strategies in high-technology firms." *Compensation and Benefits Review*, 23(5), 40-48.
- Corstjens, J. and M. Corstjens (1999). *Store Wars*, John Wiley & Sons, Chichester, UK.
- Dawes, P. L. and G. R. Massey (2005). "Antecedents of conflict in marketing's cross functional relationship with sales." *European Journal of Marketing*, 39(11/12), 1327-1344.
- De Long, D. W. and L. Fahey (2000). "Diagnosing cultural barriers to knowledge management." *Academy of Management Executive*, 14(4), 113-127.
- Dewsnap, B. and D. Jobber (2002). "A social psychological model of relations between marketing and sales." *European Journal of Marketing*, 36(7/8), 874-894.
- Dewsnap, B. and D. Jobber (2000). "The sales-marketing interface in consumer packaged goods companies: a conceptual framework." *Journal of Personal Selling & Sales Management*, 20(2), 109-119.

- Engle, R.L. and M.L. Barnes (2000). "Sales force automation usage, effectiveness, and cost-benefit in Germany, England and the United States." *Journal of Business & Industrial Marketing*, 15(4), 216-241.
- Erffmeyer, R.C. and D.A. Johnson (2001). "An exploratory study of sales force automation practices: expectations and realities." *Journal of Personal Selling & Sales Management*, 21(2), 167-175.
- Ernst, H., W.D. Hoyer and C. Rübsaamen (2010). "Sales, marketing, and research and development cooperation across new product development stages - implications for success." *Journal of Marketing*, 74(5), 80-92.
- Evans, K. R. and J. L. Schlacter (1985). "The role of sales managers and salespeople in a marketing information systems." *Journal of Personal Selling and Sales Management*, 5(2), 49-58.
- Fincham, R. and P. Rhodes (1999). *Principles of organizational Behavior*, (3rd ed). Oxford University Press, Oxford.
- Fuentelsaz, L., J. Gomez, E. Martinez, and Y. Polo (2000). "Remuneration policies in the marketing area: behavioral vs. performance measures." *Journal of Marketing Management*, 16(8), 937-957.
- Gomez-Mejia, L. R. and D. R. Balkan (1989). "Effectiveness of individual and aggregate compensation strategies." *Industrial Relations: A Journal of Economy and Society*, 28(3), 431-445.
- Guenzi, P. and G. Troilo (2007). "The joint contribution of marketing and sales to the creation of superior customer value." *Journal of Business Research*, 60 (2), 98-107.
- Guenzi, P. and G. Troilo (2006). "Developing marketing capabilities for customer value creating through marketing-sales integration." *Industrial Marketing Management*, 35(8), 974-988.
- Hauser, J. R., D. I. Simester and B. Wernerfelt (1994). "Customer Satisfaction Incentives." *Marketing Science*, 13(4), 327-350.
- Holden, J. (1999). *World Class Selling*. John Wiley & Sons, New York.
- Homburg, C., O. Jensen, and H. Krohmer (2008). "Configurations of marketing and sales: a taxonomy." *Journal of Marketing*, 72(2), 133-154.
- Homburg, C. and O. Jensen (2007). "The thought worlds of marketing and sales: which differences make a difference?" *Journal of Marketing*, 71(3), 124-142.
- Kahn, K. B. and J. T. Mentzer (1998). "Marketing's integration with other departments." *Journal of Business Research*, 42(1), 53-62.
- Kotler, P., N. Rackham and S. Krishnaswamy (2006). "Ending the war between sales and marketing." *Harvard Business Review*, 84(7/8), 68-78.
- Kotler, P. (1977). "From sales obsession to marketing effectiveness", *Harvard Business Review*, 55(6), 69-75.
- Krol, C. (2003). "Why can't marketing and sales get along?", *B to B*, 88(4), 1-2.
- Le Meunier-FitzHugh, K. and N. Lane (2009). "Collaboration between sales and marketing, market orientation and business performance in business-to-business organizations." *Journal of Strategic Marketing*, 17(3/4), 291-306.
- Le Meunier-FitzHugh, K. and N. F. Piercy (2007). "Does collaboration between sales and marketing affect business performance?" *Journal of Personal Selling and Sales Management*, 27(3), 207-220.
- Lorge, S. (1999). "Marketers are from Mars, sales people are from Venus." *Sales & Marketing Management*, 151(4), 27-33.
- Lucas Jr., G.H. and A.J. Busch (1988). "The marketing-R&D interface: do personality factors have an impact?" *Journal of Product Innovation Management*, 5(4), 257-268.
- Madhani, P.M. (2015). "Sales and marketing: integration" *SCMS Journal of Indian Management*, 12(2), 17-28.
- Madhani, P.M. (2012). "Sales and marketing integration: applying the theoretical lens of the resource-based view", *International Journal of Electronic Customer Relationship Management*, 6(3/4), 292-322.
- Malhotra, M.K. and S. Sharma (2002). "Spanning the continuum between marketing and operations", *Journal of Operations Management*, 20(3), 221-240.

- Maltz, E. and A. K. Kohli (2000). "Reducing marketing's conflict with other functions: the differential effects of integrating mechanisms." *Journal of the Academy of Marketing Science*, 28(4), 479-492.
- Martin, J. (2002). *Organizational Culture: Mapping the Terrain*, Sage Publications, Thousand Oaks, CA.
- Matthyssens, P. and W.J. Johnston (2006). "Marketing and sales: optimization of a neglected Relationship." *Journal of Business & Industrial Marketing*, 21(6), 338-345.
- Maxwell, J. R. (2008). "Work system design to improve the economic performance of the Firm." *Business Process Management Journal*, 14(3), 432- 446.
- Menon, A., B. J. Jaworski, and A. K. Kohli, (1996). "Product quality: impact of interdepartmental interaction." *Journal of the Academy of Marketing Science*, 25(3), 187-200.
- Menon, A., B. J. Jaworski, and A.K. Kohli (1997). "Product quality: impact of interdepartmental interactions." *Journal of the Academy of Marketing Science*, 25(3), 187-200.
- Moenaert, R.K. and W.E. Souder (1990). "An information transfer model for integrating marketing and R&D personnel in new product development projects." *Journal of Product Innovation Management*, 7(2), 91-107.
- Montgomery, D.B. and F.E. Webster Jr. (1997). "Marketing's inter functional interfaces: the MSI workshop on management of corporate fault zones." *Journal of Market Focused Management*, 2(1), 7-26.
- Moorman, M.B., J. Rossman, and A.A. Zoltners (2007). "Redefining the relationship between marketing and sales - the frontier of B2B marketing and sales effectiveness." *ZS Insights B2B*, 1-22.
- Munn, R.C. (1998). "Marketers must align themselves with sales." *Marketing News*, 9(November), 3-5.
- Oliva, R.A. (2006). "The three key linkages - improving the connections between marketing and sales." *Journal of Business & Industrial Marketing*, 21(6), 395-398.
- Olson, E.M., D.W. Cravens and S.F. Slater (2001). "Competitiveness and sales management: a marriage of strategies." *Business Horizons*, 44(2), 25-30.
- O'Reilly, C., J. Chatman and D. Caldwell (1991). "People and organizational culture: a profile comparison approach to assessing person-organization fit." *Academy of Management Journal*, 34(3), 487-516.
- Piercy, N.F. (2006). "The strategic sales organization." *Marketing Review*, 6(1), 3-28.
- Pinto, M. B., J. K. Pinto and J. E. Prescott (1993). "Antecedents and consequences of project team cross-functional cooperation." *Management Science*, 39(10), 1281-1297.
- Rayport, J.F. and B.J. Jaworski (2004). "Best face forward", *Harvard Business Review*, 82(12), 47-58.
- Rosenbloom, B. and Anderson, R. E. (1984). "The sales manager: tomorrow's super marketer." *Business Horizons*, 27(2), 50-56.
- Rouzies, D., E. Anderson, A.K. Kohli, R.E. Michaels, B.A. Weitz, and A.A. Zoltners (2005). "Sales and marketing integration: a proposed framework." *Journal of Personal Selling and Sales Management*, 25(2), 112-122.
- Ruekert, R.W. and O.C. Walker (1987). "Marketing's interaction with other functional units: a conceptual framework and empirical evidence." *Journal of Marketing*, 51(1), 1-19.
- Shapiro, B.P. (2002). *Creating the Customer-Centric Team: Coordinating Sales and Marketing*, Harvard Business School Press, Boston, MA.
- Simkin, L. (2002). "Tackling implementation impediments to marketing planning." *Marketing Intelligence and Planning*, 20(2), 120-126.
- Slater, S. F. and E. M. Olson (2001). "Strategy type and performance: the influence of sales force management." *Strategic Management Journal*, 22(8), 813-829.
- Smith, T.M., S. Gopalakrishna, and R. Chatterjee (2006). "A three-stage model of integrated marketing communications at the marketing-sales interface." *Journal of Marketing Research*, 43(4), 564-579.
- Sorensen, J.B. (2002). "The strength of corporate culture and reliability of firm performance." *Administrative Science Quarterly*, 47(1), 70-91.

-
- Speier, C. and V. Venkatesh, (2002). "The hidden minefields in the adoption of salesforce automation technologies." *Journal of Marketing*, 66(3), 98-111.
- Stank, T.P., P.J. Daugherty and C.W. Auty (1999). "Collaborative planning: supporting automatic replenishment programs." *Supply Chain Management*, 4 (2), 75-82.
- Strahle, W.M., R.L. Spiro and F. Acito (1996). "Marketing and sales: strategic alignment and functional implementation." *Journal of Personal Selling and Sales Management*, 16(1), 1-20.
- Tjosvold, D. (1988). "Cooperative and competitive independence." *Group & Organization Studies*, 13(3), 274-289.
- Turner, W.J. (1979). "How the IBM awards programs work." *Research Management*, 22 (4), pp.24-27.
- Viswanathan, M. and E.M. Olson (1992). "The implementation of business strategies: implications for the sales function." *Journal of Personal Selling & Sales Management*, 12 (1), 45-57.
- Wood, V. R. and S. Tandon (1994). "Key components in product management success (and Failure)." *Journal of Product and Brand Management*, 3(1), 19-38.
- Workman Jr., J.P., C. Homburg and K. Gruner (1998). "Marketing organization: an integrative framework of dimensions and determinants", *Journal of Marketing*, 62(3), 21-41.
- Aberdeen Group (2011), www.aberdeen.com
- CMO Council (2014), www.cmocouncil.org
- CMO Survey, www.cmosurvey.org
- Forrester (2011), www.forrester.com
- IDC, www.idc.com
- MarketingProfs, www.marketingprofs.com
- Marketo, www.marketo.com
- Sirius Decisions Research, www.siriusdecisions.com

Measures of Market Penetration: Indian Banks

Dilpreet Singh and Harpreet Singh

A b s t r a c t

Although literature on market penetration by banks is replete with motives and recompenses of penetration of banking services, little light has been shed on how market penetration by banks can be measured. Within the context, the present study is an attempt to conclusively establish the measures of market penetration by banks. An empirical analysis of the views of 364 bankers engaged in the development/execution of strategies revealed that increase in number of account holders, increase in total number of branches, increase in aggregate deposits, and increase in number of ATMs are the most important measures of banking penetration.

Keywords: Bank, market penetration, India, multi-dimensional scale



Dilpreet Singh
Associate Professor,
Chitkara Business School,
Chitkara University, Jhansla, Punjab
Email: dangdilpreet@gmail.com

Dr. Harpreet Singh
Professor and Head,
PG Department of Commerce,
Government Bikram College, Patiala
Email: dr.harpreet@hotmail.com

For the past two decades, market penetration by banks has been a subject matter of concern for bankers and regulators. There has been a lot of talk inside and outside the banking industry regarding the many benefits of penetration of banking services (Bihari, 2011). While regulators view it as a means to achieve financial and social inclusion, bank strategists consider it a route to enhance growth and profits (Singh and Singh, 2015). But whatever may be the end; social, economic or commercial, deepening of banking services has been accorded a high priority by both regulators (Mukhopadhyaya, 2014) and banks (Kumar and Radcliffe, 2015).

India is the seat of the largest unbanked population in the world (CRISIL, 2015). On an average, only 35 percent people have a bank account or a formal access to banking services (World Bank, 2015a). The rest of the 65 percent population of the country is excluded from mainstream banking services. When compared with the global average of 50 percent (World Bank, 2015a), India is found severely lagging

behind. This situation is worrisome from the point of view of both, the individual and the economy.

At an individual level, access to banking services can improve the standard of living and break the vicious circle of poverty (Dangi, 2013). It can enable access to cheap organized credit, releasing the currently unbanked from the control of spurious money lenders and create opportunities for livelihood generation, savings and investments (Garg and Agarwal, 2014). This will insulate individuals and their families from economic shocks and create avenues for wealth creation.

From the point of view of the economy, penetration of banking services shall pave way for inclusive growth. With all sections of the society participating in the process of economic growth and development, India shall be able to arrest the perpetual problems of slow economic growth and persistent income inequality (GPFI, 2015). Realization of small business opportunities in the wake of access to affordable capital shall generate welfare effects that will manifest themselves in the form of greater economy activity, income generation (Nayak, 2014) and reduced poverty (Scronce, 2014).

Realizing the social and economic benefits of penetration of banking services, national policy-makers and regulators have embarked on a very ambitious program of penetration of banking services (Garg and Agarwal, 2014). Embracing it as a development priority, the government has publically committed to achieve a deep penetration of banking services. It announced the Pradhan Mantri's Jan Dhan Yojana envisioning a bank account for every Indian (Mukhopadhyaya, 2014). It relaxed the KYC norms and adopted many technology and knowledge based approaches to ensure the hassle free and cost-effective penetration of banking services (Garg and Agarwal, 2014). Not only this, the Reserve Bank of India launched many awareness and literacy campaigns to promote the acceptance of banking services among the masses (Thapar, 2013). The Central Bank also facilitated bank linkages by developing the banking correspondent model. This helped prevent the hemorrhage of money in the process of penetration by outsourcing the actual process of reaching the unbanked. Undoubtedly the efforts made by the government to improve the penetration of banking services are laudable.

Moving ahead, if we look at the situation from the point of view of the bankers, we find an equal if not more emphasis laid by them on penetration of banking services. This makes one wonder why market penetration has caught the fancy of bank strategists and become an integral part of their planning.

Reaching the unbanked is a means to enhance the profits of banks (Singh and Singh, 2015). Contemporary banks are consequently penetrating virgin markets and designing new products and services to cater to the needs of the unbanked (Sarma, 2008). Banks are vigorously opening new accounts and establishing new branches aiding in deposit and credit penetration (CRISIL, 2015). These initiatives are helping banks explore new avenues of growth in the wake of stagnation in current markets (Muldoon, 1989; Javalgi et al., 1990; Philp et al., 1992; Anthony et al., 2006; Howley and Savage, 2007), as well as beat the competition (Meidan, 2007). Therefore, in adopting the strategy of market penetration, banks are looking to achieve growth, enhance profits and snatch a larger share of the market.

Having established that the government and bankers are both concerned with the deepening of banking services, it may be suitable to explore what exactly penetration of banking services entails and how it can be measured.

The finance ministry believes that the number of bank accounts, irrespective of the volume of deposits is the most significant measure of banking penetration (Srinivasan, 2014). The Reserve Bank of India considers ATM network and branch network (inclusive of business correspondents) as the most important indicators of penetration of banking services (RBI, 2013). The government deems electronic benefits transfer as a measure of penetration of banking services since a hundred percent success in electronic transfer of subsidies would imply that every household has at least one bank account (Srinivasan, 2014). In other words, the government too thinks that an increase in the number of bank accounts signifies penetration of banking services.

Further, taking up the case of international bodies, the number of commercial bank branches is the most important G20 indicator of penetration of banking services. The other parameters that G20 uses to measure banking penetration are formally banked adults, formally banked enterprises and points of banking service (GPFI, 2011). The International

Monetary Fund accounts for banking penetration through the number of commercial bank branches. The World Bank however differs in its approach and considers the number of bank accounts and the number of transactions per account as the most important gauges of the extent of market penetration by banks (World Bank, 2015b). The same measures are also used by the credit rating agency CRISIL (CRISIL, 2015).

Moving away from regulators, and toward researchers, Meidan (2007) points out that penetration strategies for banks include construction of additional bank branches, attracting new customers, establishing electronic fund transfer points, increasing the usage rate of existing services and developing new markets. Howley and Savage (2007)

feel that penetration of banking services entails extension of range of banking interests and foray into international banking. Kane (2005) believes that it is not possible to achieve penetration of banking services “without a culture of deposit gathering and deposit growth.” On the basis of an empirical research, Demirguc-Kunt and Klapper (2013) establish account penetration and access to bank credit as measures of penetration of banking services. Mukkavar (2012) expresses banking penetration as a function of number of rural bank branches. Nayak (2014) uses the increase in number of smart cards in circulation to measure the extent of penetration of banking services and Samra (2012) believes that an increase in the number of banks and bank branches indicates a higher penetration of banking services (Table 1 captures the review of literature).

Table 1: Snapshot of review of literature

S. No.	Author and date	Measures/Indicators of penetration of banking services
Regulatory bodies		
1.	Finance Ministry	Number of bank accounts
2.	Government of India	Electronic benefits transfer Number of bank accounts
3.	Reserve Bank of India	ATM network Branch network (inclusive of business correspondents)
International bodies		
4.	G20 (GPFI, 2011)	Number of commercial bank branches Formally banked adults Formally banked enterprises Points of banking service
5.	International Monetary Fund	Number of commercial bank branches
6.	CRISIL	Number of bank accounts Number of active accounts
7.	World Bank	Number of bank accounts Number of transactions per account
Researchers		
8.	Kane (2005)	Volume of deposits
9.	Howley and Savage (2007)	Extension of range of banking interests Foray into international banking
10.	Meidan (2007)	Number of bank branches Number of customers Number of fund transfer points Usage rate of existing services Development of new markets
11.	Mukkavar (2012)	Number of rural bank branches
12.	Samra (2012)	Number of banks Number of bank branches
13.	Nayak (2014)	Number of smart cards
14.	Demirguc-Kunt and Klapper (2013)	Account penetration Access to bank credit

From previous studies, it can be safely inferred that though the end is the same, each researcher has used a different approach to measure the extent of penetration of banking services. Further, while the regulators and international bodies both support the conviction of bankers, who believe that market penetration can increase growth, leading to social and economic prosperity; they lack consensus on how penetration of banking services can be measured or what its chief indicators are. The present study attempts to establish the same.

Objective of the study

There is a lot of debate inside and outside the banking industry regarding market penetration by banks. Literature is replete with the economic and social rewards of penetration of banking services (Anthony et al., 2006; Trivelli, 2013). A number of previous researchers have proffered different definitions (Meidan, 2007), motives (Singh and Singh, 2015) and advantages (Howley and Savage, 2007; Sarma, 2008) of market penetration by banks; and there exists a consensus

among their views. However, the authors found a lack of agreement among the previous researchers regarding how market penetration by banks can be measured. With in the context, the present study is an attempt to establish the measures of market penetration by banks.

Study Methodology

Questionnaire and Data Collection: A questionnaire containing the possible variables that may be used to measure market penetration by banks (for study variables refer to table 2) was drafted. A review of literature and interviews with senior bank officials helped collate the study variables. In order to assess the relative importance of a particular variable, the responses of the respondents were anchored on a five-point Likert scale with 1 indicating “very important” and 5 indicating “very unimportant”. The questionnaire also contained questions on the demographic profile of the respondents. The questionnaire was pretested for validity and clarity on respondents selected from the relevant population.

Table 2: Variables used in the questionnaire

S. No.	Study variables
1.	Increase in total number of branches
2.	Increase in number of branches in metropolitan cities
3.	Increase in number of branches in urban areas
4.	Increase in number of branches in semi-urban areas
5.	Increase in number of branches in rural areas
6.	Increase in number of employees
7.	Increase in number of ATMs
8.	Increase in aggregate deposits
9.	Increase in term deposits
10.	Increase in demand deposits
11.	Increase in savings bank deposits
12.	Increase in aggregate amount of loans
13.	Increase in amount of term loans
14.	Increase in non fund income
15.	Increase in debit cards
16.	Increase in credit cards
17.	Increase in number of cheques
18.	Increase in number of account holders
19.	Increase in number of rural bank account holders
20.	Increase in number of urban bank account holders
21.	Increase in number of transactions per account
22.	Increase in number of banking correspondents

Data for the study was collected over a fifteen-month period from March 2014 to May 2015. The sampling technique used was convenience sampling. In all, 1150 questionnaires were administered. However, at the end of the survey and after data cleaning, only 364 usable responses were obtained. In order to ensure rationality of responses, only the banking officials engaged in the development and execution of strategies were approached. These officials include vice-presidents, assistant vice-presidents, deputy general

managers, assistant general managers, zonal managers, chief managers, senior managers etc. of various public and private sector Indian banks. Since, most of the respondents were senior bank officials and difficult to approach, the response rate of the survey was very low (31.65 percent). The final data constituted of responses from officials of 21 public sector and 12 private sector banks. For details of collected data, refer to table 3.

Table 3: Details of data collected

Number of questionnaires distributed	1150
Number of usable responses obtained after data cleaning	364
Response rate	31.65
Number of usable responses obtained from public sector banks	214
Number of usable responses obtained from private sector banks	150
Bank wise details of collected data	
Bank name	Number of responses
Public sector banks	
Allahabad Bank	5
Andhra Bank	13
Bank of Baroda	3
Bank of India	1
Bank of Maharashtra	2
Canara Bank	13
Central Bank of India	15
Corporation Bank	2
IDBI Bank	8
Indian Bank	2
Indian Overseas Bank	3
Oriental Bank of Commerce	10
Punjab and Sind Bank	71
Punjab National Bank	24
State Bank of India	14
State Bank of Hyderabad	1
State Bank of Patiala	10
Syndicate Bank	2
UCO Bank	7
Union Bank of India	2
United Bank of India	2
Vijaya Bank	4

Private sector banks	
Axis Bank	13
City Union Bank	1
Federal Bank	7
HDFC Bank	49
ICICI Bank	17
IndusInd Bank	13
ING Vysya Bank	2*
J and K Bank	6
Karnataka Bank	4
Kotak Mahindra Bank	16*
South Indian Bank	2
Yes Bank	20

*ING Vysya Bank has now merged with Kotak Mahindra Bank

Data Analysis Techniques: In order to establish the most important measures of market penetration by banks, mean scores for each variable were calculated. It was considered appropriate to calculate mean scores since it is the most suitable technique if the purpose is to arrive at a single most representative value for a set of known numbers (Medhi, 1992; Salkind and Rasmussen, 2006). It is the best predictor of the centroid of a set of values. This technique was also considered fitting because it makes the incomparable attributes (measures of market penetration by banks in the present case) comparable and prioritizes them by reducing and aggregating the information into one standardized score. This process provides a clear cut ranking of the alternatives (Herwijnen, 2006) and categorically helps judge, which score is high and which score is low (Cohen et al., 2011).

Further, to convert the results into an easy to visualize structure (Ding, 2006) multi dimensional scaling was employed. It was considered particularly appropriate in the present case because it helped create faithful geometric representations of rated similarity between each pair of items (Hout et al., 2013).

Profile of respondents: Table 4 represents the demographic profile of the respondents. As can be seen, the percentage of male respondents was nearly three times the female respondents. The percentage of male respondents was 76.10 percent, while the percentage of female respondents was 23.90 percent. Further, 28.85 percent respondents were under 30 years, 22.53 percent respondents were in the age group of 31 to 40 years, 14.56 percent respondents were between 41 and 50 years and 34.07 percent respondents were over 51 years (age categories have been adopted from Sarros et al. (2012)).

Table 4: Demographic profile of respondents (n = 364)

Variable	Classification of variable	Frequency	Percentage
Gender	Male	277	76.10
	Female	87	23.90
Age	Under 30 years	105	28.85
	31 – 40 years	82	22.53
	41 – 50 years	53	14.56
	Over 51 years	124	34.07

Data Analysis and Discussion

Table 5 shows the mean scores attained by each study variable. A lower mean score indicates a higher importance of the variable and vice-versa. Variables have been arranged in decreasing order of importance. Further, variables have

also been ranked on the basis of the scores they have attained (Herwijnen, 2006).

In the succeeding paragraphs each of the study variables have been discussed in detail.

Table 5: Measures of market penetration by banks

Study variable	Mean Score	Rank
Increase in number of account holders	1.21	1
Increase in total number of branches	1.29	2
Increase in aggregate deposits	1.39	3
Increase in number of ATMs	1.40	4
Increase in number of branches in rural areas	1.41	5
Increase in debit cards	1.51	6
Increase in aggregate amount of loans	1.56	7
Increase in non fund income	1.57	8
Increase in number of rural bank account holders	1.61	9
Increase in number of employees	1.64	10
Increase in credit cards	1.68	11
Increase in savings bank deposits	1.71	12
Increase in amount of term loans	1.75	13
Increase in number of urban bank account holders	1.81	14
Increase in demand deposits	1.84	15
Increase in number of branches in semi-urban areas	1.89	16
Increase in term deposits	1.92	17
Increase in number of banking correspondents	1.97	18
Increase in number of cheques	1.99	19
Increase in number of branches in urban areas	2.04	20
Increase in number of branches in metropolitan cities	2.09	21
Increase in number of transactions per account	2.78	22

Increase in number of account holders: “Increase in number of account holders” has emerged as the most significant measure of market penetration by banks. Interestingly, this finding is in synchronization with the indicators of bank penetration used by the finance ministry, the World Bank and the credit rating agency CRISIL. Further, many previous researchers (Meidan, 2007; Derirguc-Kunt and Klapper, 2013) have also considered an increase in the number of bank accounts as a vital measure of penetration of banking activity.

Though an increase in the number of bank accounts is a popular determinant of penetration of banking services, many previous researchers have not used it to measure the extent of banking penetration (Kane, 2005; Mukkavar, 2012;

Samra, 2012; Nayak, 2014). This probably could be because many critics feel that the number of accounts irrespective of the volume of deposits is meaningless (Howleya nd Savage, 2007). Citing the particular case of India, in the wake of the government’s mission to achieve financial inclusion, over 100 million new bank accounts have been opened. Out of these new accounts, only 54 percent are actively used (Murthy, 2015). Thus, the approach of achieving banking penetration by opening new accounts may be flawed due to the lack of universality of the method and the sheer focus on speed and numbers (Ramaswamy, 2014).

To over come this problem, banking experts recommend the use of a more superior measure of banking penetration - number of transactions per account (CRISIL, 2015; World

Bank, 2015b). Critics believe that an increase in the number of transactions per account indicates an increase in banking activity and hence banking penetration (Meidan, 2007). However, in the current study bank strategists have not accorded any importance to this parameter (rank 22).

Despite the drawbacks in this approach, the number of bank accounts remains the most important and popular measure of penetration of banking services. Further, while the absolute number of bank accounts has emerged as the most important parameter to measure banking penetration, the respondents do not accord an equal importance to the geographical location of the bank accounts. The variable "Increase in number of rural bank account holders" (rank 9) has managed to achieve a rank among the top ten variables, but the variable "Increase in number of urban bank account holders" (rank 14) has not emerged as a significant indicator of market penetration by banks in the present study. This could probably be a reflection of the understanding of the bank strategists that a higher potential for banking penetration exists in the rural markets.

Furthermore, closely associated with the number of bank accounts, is the number of debit cards (most account holders possess a debit card). This could have accounted for the relatively high rank (rank 6) achieved by the variable – "Increase in number of debit cards." It may not be amiss to point here that while the number of debit cards has emerged as a reasonably important measure of banking penetration, the number of credit cards has not been afforded a similar treatment (rank 11). This could be a reflection of the loan-averse nature of the Indian population, where resorting to borrowed money is still a social taboo. If we compare these results with those of a study conducted by Nayak (2014), we find a dichotomy in the results of the two studies. Nayak (2014) considered an increase in number of smart cards as the most important measure of penetration of banking services. This finding is not seconded by the current study.

Increase in total number of branches: "Increase in total number of branches" has emerged as the second most important measure of penetration of banking services. This finding coincides with the banking penetration indicators used by the Reserve Bank of India (Reserve Bank of India, 2015), G20 and the International Monetary Fund. Individual researchers, such as, Meidan (2007) and Samra (2012) have also recommended an increase in the number of commercial bank branches as an important measure of banking penetration.

Banking experts opine that not only the number of branches, but also their location plays an important role in achieving penetration of banking services (Philp et al., 1992). Since growth in the current markets has saturated and most metropolitan cities in India have achieved a 100 percent penetration of banking services (CRISIL, 2015), a move into the rural markets is recommended. For this reason perhaps, in the current study "Increase in the number of branches in rural areas" has emerged as the fifth most important measure of penetration of banking activity. This finding of the current study is supported by the findings of a previous study conducted by Mukkawar (2012). Given the Indian scenario, Mukkawar (2012) recommends an increase in the number of rural bank branches as the most significant measure of banking penetration. Further, apart from rural branches, none of the other study variables specifying the location of new bank branches – "Increase in number of branches in semi-urban areas" (rank 16), "Increase in number of branches in urban areas" (rank 20) and "Increase in number of branches in metropolitan cities" (rank 21) have emerged as significant indicators of penetration of banking services.

Though an increase in number of branches is a popular measure of banking penetration, many previous researchers have not taken it into consideration while accounting for penetration of banking services (Nayak, 2014; Demirguc-Kunt and Klapper, 2015). This may be on account of a decrease in reliance on physical bank branches and popularity of branchless banking (PwC, 2012). It may also not be amiss to point out here that although the use of Internet and Information Technology are an important alternate channel of delivery of banking services, this strategy may not work very well in India. Given the focus of the government on financial inclusion and the poor penetration of Internet services in the rural areas, a wide network of bank branches is required. But in the light of the high cost associated with a wide branch network, many experts recommend that help of banking correspondents may be sought to achieve penetration of banking services (Srinivasan, 2012, RBI, 2015). In the present study however, the variable "Increase in number of banking correspondents" has not fared well (rank 18). This can only mean that while expanding the network of banking correspondents is a means to achieve banking penetration, it is not a measure of the extent of penetration achieved.

Increase in aggregate deposits: Bank strategists consider "Increase in aggregate deposits" as the third most important

measure of penetration of banking activity. This finding is supported by previous literature (Kane, 2005; Ben-David et al., 2014). This also explains the government's latest initiative to open payment banks (specialized in accepting deposits) to achieve penetration of banking services.

Further, within the type of deposits, none of the variables have fared well – “Increase in savings bank deposits” (rank 12), “Increase in demand deposits” (rank 15) and “Increase in term deposits” (rank 17). This indicates that while an increase in aggregate deposits is important to achieve penetration of banking services, the type of deposit in itself may not be very significant.

Having established that increase in deposits is a key indicator of penetration of banking services, the widespread concern in the Indian banking industry on account of deceleration in aggregate deposits (Business Standard, 2015) is understandable. While the number of bank accounts is steadily increasing (CRISIL, 2015), the increase in aggregate deposits is slowing down (Business Standard, 2015). This indicates a need to focus on deposit gathering and deposit growth along with an increase in number of bank accounts. Indian banks should thus shift their focus from merely opening bank accounts to vigorously chasing deposits.

Furthermore, critics are worried that the weakened aggregate deposit inflows will disrupt the role of banks as liquidity creators (Acharya and Mora, 2012). Ability to create loans is directly proportional to bank deposits (Jayaratne and Morgan, 2000; Berger and Bouwman, 2009) and hence Indian banks may not be in a position to create adequate loans to meet the growing credit needs of the economy. And as per the current study, “Increase in aggregate amount of loans” is a measure of banking penetration, albeit not a very important one (rank 7). Also, the other variable specifying a loan type – “Increase in amount of term loans” (rank 13) has not fared well in the current study.

Of the many banking services, credit is a major one. Though this variable has not achieved a very high rank in the current study, many experts believe that credit penetration / access to bank credit is an important measure of penetration of banking services (Demirguc-Kunt and Klapper, 2013). Since, credit penetration is a corollary of deposit penetration, it is suggested that Indian banks should graduate from the role of passive recipients of deposits to active seeker of deposits.

Moving ahead, though credit penetration indicates banking penetration, a mindless increase in aggregate amount of loans is not recommended. Loans enhance the exposure of a bank and considerably increase risk (Altunbas et al., 2011). They also directly and negatively impact the return on equity (Kohler, 2015). What may be done in such a scenario?

A good solution to stabilize banks in the face of high credit exposure is an increase in non-fund income. It can be achieved through a diversification of income sources (Demirguc-Kunt et al., 2000; Kohler, 2015). This may have accounted for the popularity of universal banking and fee based banking activities in the recent past. Banks are today trying to deepen penetration by extending their range of banking activities (Demirguc-Kunt and Klapper, 2013) and this may be the reason why the variable “Increase in non-fund income” has emerged as one among the top ten measures (rank 8) of penetration of banking services in the present study.

Increase in number of ATMs: Against the backdrop of the government's objective of financial inclusion, ATMs provide an easy and convenient means of penetration of banking services. In fact, since ATMs are open typically at all times of the day and night; and all days of the week, they are considered even more convenient and cost effective than traditional banking offices in achieving penetration of banking services (Humphrey, 1994).

Experts believe that “there is nothing like a real world indicator for an economic phenomenon and it is gratifying to discover a new proxy for banking penetration – the number of automated teller machines” (Gapper, 2011). This explains why the variable “Increase in number of ATMs” features among the top measures (rank 4) of penetration of banking services in the present study.

As of May 2015, the total number of ATMs in India is 183887 and individually, State Bank of India tops the list of number of ATMs per bank (source: RBI). Given the total population of the country, these figures indicate poor penetration of banking services. In fact, the number of ATMs per 1000 square kilometers in India is far below the average of other emerging economies (source: RBI). Thus, keeping in mind the extent of financial exclusion, there is a lot of scope of increase in number of ATMs in India.

Other variables: In the present study, the variable “Increase in number of employees” has attained rank10 among the 22 variables used. The contention that a higher number of employees signifies a deeper penetration of banking services is questionable. Though it may sound logical to presume that workforce expansion will aid in achieving penetration, the fact remains that in the absence of due contribution to profit or business, additional employees are a liability for banks. For this reason perhaps, while the normative goal of many banks is market penetration, they are simultaneously reducing their workforce to enhance productivity and efficiency (Preez, 2015; Shankar, 2015).

Lastly, the variable “Increase in number of cheques” has not been given much importance as a measure of banking penetration (rank 19). For this reason, in the present study, this variable has emerged as an insignificant measure of penetration of banking services.

Figure 1 represents a visual spatial display of the preferences and perceptions of the respondents (Malhotra and Dash, 2010). This depiction reduces the complexity of the data allowing a visual appreciation of the underlying relationships between variables (Hout et al., 2013).

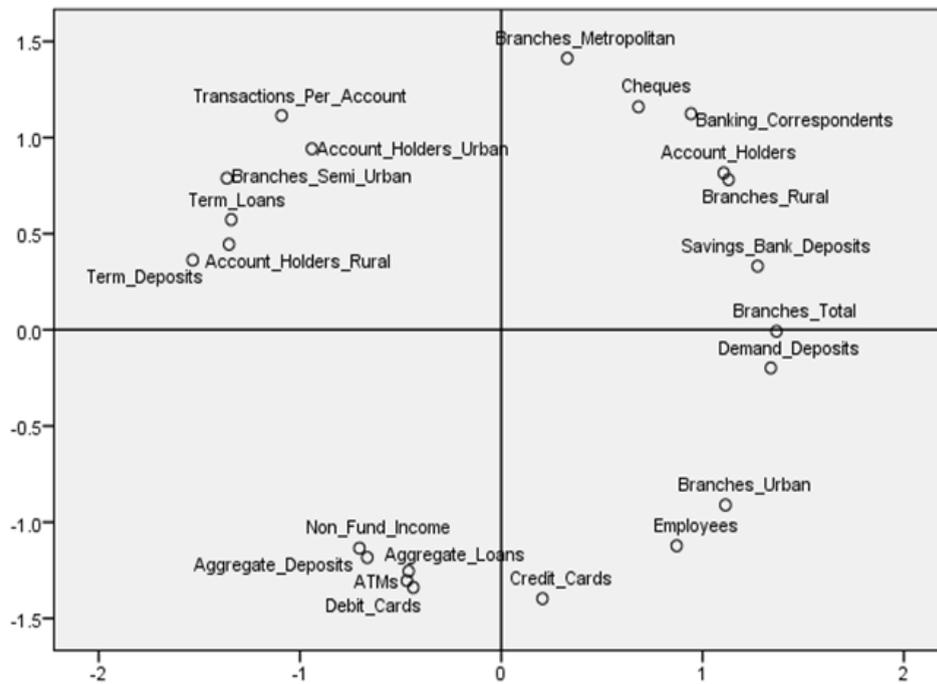


Figure 1: A visual spatial display of perception of the respondents

The above scatter plot of variables in a two-dimensional plane has helped arrive at an arrangement that best approximates the responses of the respondents. Clear patterns of clusters, based on perceived similarity emerge that provide a meaningful representation of the views of the respondents.

Conclusion and Implications

On the basis of current study, it can be concluded that increase in number of account holders, increase in total

number of branches, increase in aggregate deposits and increase in number of ATMs are the most significant measures of penetration of banking services. Therefore, when attempting to measure or compare penetration of banking services, these four variables should be used. This will not only help standardize the process of measurement of banking penetration, but also facilitate an easy comparison between the works of different researchers/ bodies.

Limitations of the Study

The sampling technique used for the current study was convenience sampling. Because of the inherent limitations of this technique, future researchers may rethink the use of this technique.

References

- Acharya V.V. and N. Mora (2012). "Are Banks Passive Liquidity Backstops? Deposit Rates and Inflows during the 2007-09 Crisis," available at <http://web.law.columbia.edu/sites/default/files/microsites/law-economics-studies/Acharya,%20Viral%20V%20-%202012%20Fall%20WS.pdf> accessed on 21.08.2015.
- Altunbus Y., S. Manganelli and Marques-Ibanez (2011). "Bank Risk During the Financial Crisis: Do Business Models Matter?," available at <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1394.pdf> accessed on 21.08.2015.
- Anthony S.D., M. Eyring and L. Gibson (2006). "Mapping Your Innovation Strategy," *Harvard Business Review*, May, pp. 1-11.
- Ben-David I., A. Palvia and C. Spatt (2014). "Banks' Internal Capital Markets and Deposit Rates," available at file:///Users/namratasandhu/Downloads/BanksInternalCapitalMarketsAndDepo_preview.pdf accessed on 21.08.2015.
- Berger A.N. and C.H.S. Bouwman (2009). "Bank Liquidity Creation." *Review of Financial Studies*, Vol. 22(9), pp. 3779-3837.
- Bihari S.C. (2011). "Financial Inclusion for Indian Scene." *SCMS Journal of Indian Management*. Vol. VIII(III), pp. 5-16.
- Business Standard (2015). "Bank Credit and Deposit Growth Decelerates," available at http://www.business-standard.com/article/finance/bank-credit-and-deposit-growth-decelerates-115022701190_1.html accessed on 21.08.2015.
- Cohen L., L. Manion and K. Morrison (2011). *Research Methods in Education*, Routledge; 7 edition.
- CRISIL (2015). "Financial Inclusion Continues to Gather Pace," available at CRISIL_Press_Release_Financial_inclusion_continues_to_gather_pace_25_June_2015.pdf accessed on 12.09.2015.
- Dangi N. (2013). "Current Situation of Financial Inclusion in India and its Future Visions," *International Journal of Management and Social Sciences Research*, Vol. 2(8), pp. 155-157.
- Demirguc-Kunt A., E. Detragiache and P. Gupta (2000). "Inside the Crisis: An Empirical Analysis of Banking System in Distress," available at <https://www.imf.org/external/pubs/ft/wp/2000/wp00156.pdf> accessed on 21.08.2015.
- Demirguc-Kunt A. and L. Klapper (2013). "Measuring Financial Inclusion: Explaining Variation in Use of Financial Services Across and Within Countries," *Brookings Papers on Economic Activity*, pp. 279-340.
- Ding C.S. (2006). "Multidimensional Scaling Modeling Approach to Latent Profile Analysis in Psychological Research," *Journal of Psychological Research*, Vol. 41(3), pp. 226-238.
- Gapper J. (2011). "Measuring Growth by ATMs", available at <http://blogs.ft.com/businessblog/2011/03/measuring-economic-growth-by-atms/> accessed on 25.08.2015.
- Garg S. and P. Agarwal (2014). "Financial Inclusion In India – A Review of Initiatives and Achievements," *IOSR Journal of Business and Management*, Vol.16(6), pp. 52-61.
- GPFI (2011). "The GSO Set of Basic Financial Inclusion Indicators," available at <http://www.gpfi.org> accessed on 12.09.2105.
- GPFI (2015). "Why Financial Inclusion?" available at <http://www.gpfi.org/about/why-financial-inclusion> accessed on 12.09.2015.
- Herwijnen M. (2006). "Weighted Summation," available at http://www.ivm.vu.nl/en/Images/MCA2_tcm53-161528.pdf accessed on 17.08.2015.
- Hout M.C., M.H. Papesch and S.D. Goldinger (2014). "Multidimensional Scaling," available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555222/> accessed on 19.08.2015.
- Howley J.C. and G.P. Savage (2007). "Bank Marketing in the Personal Sector." *Managerial Finance*, Vol. 5(3), pp. 271-276.
- Humphery D.B. (1994). "Delivering Deposit Services: ATMs Versus Branches." *Economic Quarterly*, Vol. 80(Spring), pp. 59-81.

- Javalgi R.G., J. Belonax and A.M. Robinson (1990). "Mature Consumers in the Financial Services Marketplace – Potential Market Segments," *Journal of Professional Services Marketing*, Vol.6(1), pp. 81-107.
- Jayarathne J. and D.P. Morgan (2000). "Capital Market Frictions and Deposit Rates at Banks," *Journal of Money, Credit and Banking*, Vol. 30(1), pp. 74-92.
- Kane M. (2005). "Strategies and Tactics to Improve Deposit Growth," available at <http://kanebankservices.com/WIB2%2009-05.pdf> accessed on 21.08.2015.
- Kohler M. (2015). "Which Banks Are More Risky? The Impact of Business Models on Bank Stability," *Journal of Financial Stability*, Vol. 16, pp. 195-212.
- Kumar K. and D. Radcliffe (2015). "Advancing Financial Inclusion to Improve the Lives of the Poor," available at <http://www.cgap.org/blog/2015-set-be-big-year-digital-financial-inclusion-india> accessed on 12.09.2015.
- Malhotra N.K. and S. Dash (2010). *Marketing Research: An Applied Orientation*, Pearson; 6 edition.
- Medhi J. (1992). *Statistical Methods: An Introductory Text*. New Age International.
- Meidan A. (2007). "Bank Marketing Strategies," *International Journal of Bank Marketing*, Vol. 1(2), pp. 3-17.
- Mukhopadhyaya J.N. (2014). "Financial Inclusion in India: Moving Beyond Bank Accounts," available at <http://knowledge.wharton.upenn.edu/article/financial-inclusion-india-aims-move-beyond-bank-accounts/> accessed on 12.09.2015.
- Mukkawar R. (2012). "An Eye-Opener for the Policy Makers," available at <http://www.thehindubusinessline.com/opinion/financial-inclusion-for-whose-benefit/article3473538.ece> accessed on 12.09.2015.
- Muldoon K. (1989). "Are Planners Neglecting Professional Women?," *Personal Financial Planning*, July-August, pp. 34-37.
- Murthy G. (2015). "Financial Inclusion Insights," available at <http://finclusion.org/fii-blog/moving-beyond-the-first-step-to-financial-inclusion-in-india/> accessed on 25.08.2015.
- Nayak A. (2014). "Benefits of Financial Inclusion to India," available at <http://indiamicrofinance.com/benefits-financial-inclusion-india.html> accessed on 12.09.2015.
- Philp P.R., P.J. Haynes and M.M. Helms (1992). "Financial Service Strategies: Neglected Niches," *International Journal of Bank Management*, Vol. 10(2), pp. 25-28.
- Preez D. (2015). "Barclays Set to Cut 30,000 Jobs," available at <http://diginomica.com/2015/07/20/barclays-set-to-cut-30000-jobs-as-it-looks-to-increase-automation-and-reduce-costs/#.VgIpzp3zr6Y> accessed on 20.09.2015.
- PwC (2012). "Rebooting the Branch: Branch Strategy in a Multi-Channel, Global Environment," available at <http://www.pwc.com/us/en/financial-services/publications/viewpoints/reinventing-branch-banking-network.jhtml> accessed on 21.08.2015.
- Ramaswamy K. (2014). "Financial Inclusion in India: Moving Beyond Bank Accounts," available at <http://knowledge.wharton.upenn.edu/article/financial-inclusion-india-aims-move-beyond-bank-accounts/> accessed on 25.08.2015.
- Reserve Bank of India (2012-13). "Statistical Tables Related to Banks in India," <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/OSTR191113FL.pdf> accessed on 17.08.2015.
- Reserve Bank of India (2015). "Annual Report," available at <https://www.rbi.org.in/scripts/AnnualReportPublications.aspx?Id=1041> accessed on 12.09.2015.
- Salkind N.J. and K. Rasmussen (2006). *Encyclopedia of Measurement and Statistics*, Sage Publications; 1 edition.
- Samra P. (2012). "Penetration of Banking in India," available at <http://www.thehindubusinessline.com/opinion/financial-inclusion-for-whose-benefit/article3473538.ece> accessed on 12.09.2015.
- Sarma M. (2008). "Index of Financial Inclusion," available at http://www.icrier.org/pdf/Working_Paper_215.pdf accessed on 12.09.2015.

-
- Sarros J.C., A. Pirola-Merlo and R. Baker (2012). "The Impact of Age on Managerial Style," available at <http://www.aimqld.com.au/research/documents/TheImpactOfAgeOnManagerialStyle.pdf> accessed on 19.08.2015.
- Scronce E. (2014). "Impact Evidence Confirms the Benefits of Financial Inclusion," available at <http://www.cgap.org/news/impact-evidence-confirms-benefits-financial-inclusion> accessed on 12.09.2015.
- Shankar B. (2015). "Top Private Banks ICICI, Axis Reduce Employee Count," *International Business Times*, May 27, 2015.
- Singh D. and Singh H. (2015). "Market Penetration by Indian Banks – Motives and Motivators." Manuscript submitted for publication.
- Srinivasan R. (2014). "Financial Inclusion for Whose Benefit?." *The Hindu*, May 30, 2012.
- Thapar A. (2013). "A Study on the Effectiveness of the Financial Inclusion Program in India." *VSRD International Journal of Business and Management Research*, Vol. 3(6), pp. 211-216.
- Trivelli C. (2013). "Social Inclusion cannot be Achieved Without Financial Inclusion," available at <http://www.cgap.org/blog/social-inclusion-cannot-be-achieved-without-financial-inclusion> accessed on 12.09.2015.
- World Bank (2015a). "Key Global Indicators," available at datatopics.worldbank.org/g20fidata accessed on 12.09.2015.
- World Bank (2015b). "How to Measure Financial Inclusion?" available at <http://www.worldbank.org/en/topic/financialinclusion/brief/how-to-measure-financial-inclusion> accessed on 12.09.2015.

FDI Comparatistics: China and India

Kishore G. Kulkarni, Poornima Tapas, and Rita R. Dangre

A b s t r a c t

This paper offers theoretical principles of gains from foreign direct investment (FDI) activities for an economy and tests the role of FDI in Chinese and Indian economic growth. It not only points out how FDI lowers the saving shortage in a developing economy, but also offers the mechanism in which in recent years China has been more successful in attracting FDI than India. There are some lessons to be learned for any economy in general and for India in particular, to use the Chinese model of making FDI more attractive. We compare the flows of FDI over the years in China and India.

Paper is organized in the following terms: After initial introduction, Section 1 summarizes the theoretical principles guiding the importance of FDI for an economy. It also carries out the relevant literature survey. It is noted that a voluminous research has already taken place on this topic, which is a manifestation of the topic's importance to the researchers. Section 2 reports the data of recent years of FDI activities in India and China. It also surveys the avenues used by these two economies to mobilize the foreign saving. Section 3 carries out the summary and makes some conclusions.

Keywords: Chinese Economy, Indian Economy, Increased liberalization Capital formation



Kishore G. Kulkarni, Ph.D.
Distinguished Professor of Economics and Editor,
Campus Box 77, P. O. Box 173362,
Metropolitan State University of Denver,
Denver, CO 80217-3362.
E mail address: kulkarnk@msudenver.edu

Poornima Tapas, Ph.D.
Head, Department of Economics,
Symbiosis Institute of Business Management, Pune
Email: poornima.tapas@gmail.com

Rita R. Dangre, Assistant Professor,
Indira Institute of Management, Pune.
Email: rita.dangre@indiraiimp.edu.in

In recent years the gap between FDI movement to Chinese economy and Indian economy has become smaller, but the gap is still pretty wide with China attracting FDI of 55 billion per year while India is struggling to have about \$20 billion. With GDP of \$17.4 trillion (in purchasing power terms) China has overtaken USA's GDP (of \$17.4) in December 2014. This has made China as the largest GDP producing country. This astonishing growth is made possible by double digit growth rates from 1990 onwards. World Bank data indicate that China's GDP grew by 10.6 percent from 1990 to 2000 and by 9.6% from 2000 to 2010. Some of the reasons for this tremendous increase have been the increased liberalization, freer markets, freer trade, higher labor productivity, efficient use of resources, and also the role of foreign direct investment. In this paper we shall focus on the freer movement of financial capital that China allowed in last 30 years. On the other hand India has been struggling to capture the same attractiveness for FDI. The paper is organized as follows. Section 2 explains the reasons for foreign direct investment (FDI hereafter) on

theoretical level as well as points out theoretical structure for the benefits from FDI. Section 3 will concentrate on the comparative performance of Indian and Chinese economies in terms of attracting FDI. It will also summarize the reasons behind better performance by China and the way in which Indian economy can improve her performance. Section 4 will summarize our findings and make some conclusions.

Theoretical Arguments for Increasing FDI

There are several arguments for having higher amount of FDI to accelerate the economic growth and improve the life of country's habitants. But before we get into the discussion of FDI we need to clarify the difference between FDI and foreign portfolio investment. While FDI involves at least 50% ownership and direction by the foreign entity, foreign portfolio investment does not involve any of such ownership or direction. Hence flow of funds in portfolio investment is essentially financial capital flow with no ownership intentions. In case of FDI, however, some kind of the production is taking place in plants located in two or more countries but under the supervision and general direction of headquarters located in one country. The recent history of FDI has been interesting. The total FDI is estimated by the United Nations Conference on Trade and Development (UNCTAD) has increased by 900% since 1990. Even if it saw some setback in 2008 due to the worldwide financial crisis, (it declined by around 5%), the overall growth in recent years in FDI stock is very impressive. For example, total FDI figure in the world was \$19.1 trillion in 2010 which increased by 18.8% from 1996 to 2000, 13.4% from 2001 to 2005, and jumped by 23.4% in 2006 and 26.2% in 2007. After crisis, slowly but significantly, worldwide FDI growth has increased to double digit rates. The USA has been the leader in terms of FDI made by US companies of roughly \$4 trillion in 2010, mainly in Europe, Latina America, Asia and Pacific Rim countries and in Canada.

The foreign direct investment has been a great part of China's recent success as China has become largest exporting country in 2013, but fifty percent of Chinese exports have come from firms in which foreign investors have at least some ownership. Branstetter and Freenstra (2002) examined determinants of FDI into China during 1984-1995 period, and concluded that policies played a critical role in attracting FDI and policies were different for different provinces. For example, in 1979 Guangdong and Fujian provinces became sites of "special economic zones" that gave very favorable tax and administrative treatment to

foreign firms (more favorable treatment than to domestic Chinese firms!) (see page 223 in Freenstra-Taylor (2013)). In one way or the other, this favorable treatment to foreign firms continued even after 1984 and 1995.

Firms are interested in investing in emerging markets like China and India for a variety for reasons, but we should investigate some of them here (as Dawson (2011) has done) as follows:

High rate of return for the capital: The main reason for higher FDI is the greater rate of return on the capital investment and use. There can be several reasons why capital gets higher return in one country over the other:

- a) **Marketability:** Firms will invest abroad in response to large and rapidly growing markets for their products. Economic researchers have shown a positive relationship between high rates of growth of GDP and the increase in FDI. Similarly, because manufacturing and services production in developed countries is catering to high-income tastes, it can be hypothesized that as emerging markets grow the tastes of consumers change in favor of manufacturing and services. This is clearly evident in Indian markets for automobiles, cell phones, refrigerators, washers and dryers and many other capital intensive manufacturing goods. No wonder then there is an attractive force for FDI as the per capita income grows in India and China.
- b) FDI is done more as foreign firm can secure access to the minerals and raw materials needed for their final product in developed country. Classic examples are oil extraction, mining, some agricultural products and copper.
- c) Foreign firms are more attracted when the tariff and other trade barriers are dismantled by the policy makers. If trade restrictions make it impossible for the capital to move from abroad to the domestic economy the reduction in these restrictions increase the attractiveness for the FDI. Until 1990 both India and China were blocking the FDI in one way or the other. However as the trade restrictions were lifted, after 1990 these countries became quite an important destination for foreign firms' investment.
- d) Another very important attractive force for FDI is the advantage of the lower wages offered in the labor markets of China and India. Clearly, the existence of

low wages because of relative labor abundance in these countries is an attraction when the production process is labor intensive. But, more and more firms have started finding out that even if a good is capital intensive, its production can be divided into the labor intensive part and capital intensive part so that the first one will be undertaken in China or India and the second one is completed in the developed country. Hence low wages are taken advantage of even if the good is a capital intensive good.

e) **Competitiveness:** Another reason for increased FDI is the attitude of the big firms “to keep up with the Joneses” or do the FDI just because the competitive firms are already into it. Classic example of this is the automobile industry. When one firm starts the FDI influenced growth, and starts taking a higher share of the market, other firms have to keep up with this competition of grabbing back the market share by opening plants abroad.

f) **Risk diversification:** Just like private investor does not want to “keep all eggs in one basket.” big firms also like to diversify their investments by investing abroad. If a recession or downturn occurs in one market, it will be beneficial for a firm not to have all investment in home country. Which other countries can be more attractive for these investment activities than China and India? In fact both these countries actively manage to invite foreign firms. Finally one can also point out that the foreign firms tend to get attracted when they possess a better knowledge of production (better technology) superior management skills, hold a direct patent of the whole product or a small part of the total product. For all these reasons, FDI has increased

tremendously and the communication technology, better shipping, better movement of labor have all added to the unprecedented growth in the stock of worldwide FDI. We would move to investigating the specific performance of Indian economy and Chinese economy in attracting FDI in recent years.

The theoretical framework for higher return on capital via foreign direct investment, its effect on real output and other factors of production can also be shown as follows:

Consider Figure 1 as follow with only two countries in the world, A and B, that have marginal physical product of capital (MPPk) depicted by downward sloping (D1) for country A and (D2) for country B (on vertical axis to the right). Recall that area under the MPPk curve corresponds to the total product and assume that is same as the GDP produced in each country. OO' distance represents the total capital stock of two countries. If the rate of return on the capital is given by r_1 in country A and r_2 in country B ($r_1 > r_2$) then under a free movement of capital there is an attractive force for capital to flow from country B to country A. This movement of capital will continue until rate of return in both countries becomes equal, say r_3 .

Consider the effect of this capital movement on Country A's GDP which has increased and that of Country B has gone down. However, for the world as a whole GDP, the GDP has increased as capital has moved from lower marginal physical productivity place to the higher marginal productivity destination. Thus, FDI increases the return on overall capital in the world, increases GDP of the world and improves the marginal as well as total productivity of capital in the recipient country.

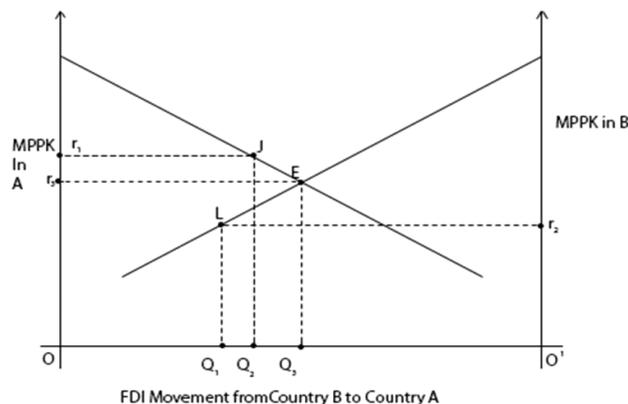


Figure 1: Flow of Capital to Higher Marginal Productivity Destination

FDI Flow in India

Economic reforms taken by Indian government in 1991 make the country as one of the prominent performer of global economies by placing the country as the 4th largest and the 2nd fastest growing economy in the world. India also ranks as the 11th largest economy in terms of industrial output and has the 3rd largest pool of scientific and technical manpower. Continued economic liberalization since 1991 and its overall direction remained the same over the years irrespective of the ruling party moved the economy towards a market – based system from a closed economy characterized by extensive regulation, protectionism, public ownership which leads to pervasive corruption and slow growth from 1950s until 1990s.

Since independence, India's BOP on its current account had been negative. However, since 1996-97, its overall BOP has been positive, largely on account of increased FDI and deposits from Non – Resident Indians (NRIs), and commercial borrowings. The fiscal deficit has come down from 4.5 per cent in 2003-04 to 2.7 per cent in 2007-08 and revenue deficit from 3.6 per cent to 1.1 per cent in 2007-08. Fiscal deficit in 2013-14 was 4.5 per cent of GDP. New Government is expecting it to fall further below 4 per cent in 2014-15.

As a consequence of policy measures (taken way back in 1991) FDI in India has increased manifold since 1991 irrespective of the ruling party over the years, as there is a growing consensus and commitments among political parties to follow liberal foreign investment policy that invite steady flow of FDI in India so that sustained economic growth can be achieved. India's foreign exchange reserves shot up 55 per cent in 2007-08 to close at US \$309.16 billion – an increase of nearly US \$110 billion from US \$199.18 billion at the end of 2006-07. Domestic saving ratio to GDP shot up from 29.8% in 2004-05 to 37.7% in 2007-08. For the first time India's GDP crossed one trillion dollars mark in 2007.

The actual FDI inflows in India is welcomed under five broad heads: (i) Foreign Investment Promotion Board's (FIPB) discretionary approval route for larger projects, (ii) Reserve Bank of India's (RBI) automatic approval route, (iii) acquisition of shares route (since 1996), (iv) RBI's non – resident Indian (NRI's) scheme, and (v) external commercial borrowings (ADR/GDR) route.

India has broadened the sources of FDI in the period of reforms. There were 120 countries investing in India in 2008

as compared to 15 countries in 1991. Thus then number of countries investing in India increased after reforms. After liberalization of economy Mauritius, South Korea, Malaysia, Cayman Islands and many more countries predominantly appears on the list of major investors apart from U.S., U.K., Germany, Japan, Italy, and France which are not only the major investors now but during pre- liberalizations era also. Mauritius is the largest investor in India during 1991-2008. FDI inflows from Mauritius constitute about 39.9% of the total FDI in India and enjoying the top position on India's FDI map from 1995. This dominance of Mauritius is because of the Double Taxation Treaty i.e. DTAA- Double Taxation Avoidance Agreement between the two countries, which favors routing of investment through this country. This (DTAA) type of taxation treaty has been made out with Singapore also. (*Ms. Sapna Hooda, 2011*)

According to GYANPRATHA – ACCMAN (Journal of Management, Volume 5 Issue 1, 2013) FDI for 2009-10 at US\$ 25.88 billion was lower by five per cent from US\$ 27.33 billion in the previous fiscal. Foreign direct investment in August dipped by about 60 per cent to approx. US\$ 34 billion, the lowest in 2010 fiscal, as industry department data released showed. In the first two months of 2010-11 fiscal, FDI in flow into India was at an all-time high of \$7.78 billion up 77% from \$4.4 billion during the corresponding period in the previous year.

In 2013, the government relaxed FDI norms in several sectors, including Telecom, Defense, PSU oil refineries, power exchanges, and stock exchanges. The sectors which attracted higher inflows were services, telecommunication, construction activities and computer software and hardware. During FY 2012–13, India attracted FDI worth US\$ 2.42 billion. Tourism, pharmaceuticals, services, chemicals and construction were among the biggest beneficiaries. The January–November period in 2013 witnessed mergers and acquisitions deals worth US \$ 26.76 billion in India, according to a survey by tax advisory firm Grant Thornton.

In retail, UK-based Tesco submitted its application to initially invest US\$ 110 million to start a supermarket chain in collaboration with Tata Group's Trent. In civil aviation, Malaysia-based Air Asia and Singapore Airlines teamed up with Tata Group to launch two new airline services. Also, Abu Dhabi-based Etihad picked up a 24 per cent stake in Jet Airways that was worth over Rs 2,000 crore (US\$ 319.39 million).

Recent Developments

New Zealand is looking to establish an office in Mumbai to broaden its education footprint in India. It plans to set up an education promotion and market development role within the New Zealand Consulate General, Mumbai. There was an increase of more than 10 per cent in student visas issued to Indian nationals in 2013, making India among the fastest growing student markets for New Zealand.

Korean South-East Power Company (KOSEP), part of South Korean state-owned power generator Korea Electric Power Corporation, has signed an initial agreement with Jinbhuvish Group, Mumbai, for technical support for its Rs 3,450-crore (US\$549.31 million) project in Maharashtra. The 600 megawatt (mw) power plant, which will be set up in Yavatmal district, is expected to be commissioned in 2016.

India and UAE have agreed to promote collaboration in renewable energy, focusing in the areas of wind power and solar energy. A Memorandum of Understanding (MoU) was signed by Dr. Farooq Abdullah, Minister of New and Renewable Energy of India and Dr. Sultan Ahmed Al Jaber, Minister of State of UAE in Abu Dhabi on January 18, 2014. Luxury watch brand Jaeger-LeCoultre from Switzerland has filed for a 100 percent single brand application to enter the Indian retail market. It thus became the first luxury company to apply for FDI through this route. Geneva-based Richemont SA that owns the luxury brand filed the application with the Department of Industrial Policy and Promotion (DIPP).

France's Lactalis, the biggest dairy products group in the world, will most likely buy out Hyderabad-based Tirumala Milk Products for US \$275–300 million. Lactalis has a yearly turnover of about US \$21 billion. Tirumala had a turnover of Rs 1,424 crore (US\$ 226.71 million) for FY 2012–13. The Hyderabad-based company, which was founded in 1998, makes dairy products such as sweets, flavoured milk, curd, ice cream, etc.

Recent policy initiatives

The Ministry of Home Affairs has finally given the approval to the proposal of allowing FDI in railways. The Cabinet Committee on Economic Affairs (CCEA) is expected to consider the proposal. Foreign investors can invest only in construction and maintenance of railway projects, and not in operations.

India's Ex-Prime Minister Singh had sought increased Japanese investment in the country in 1990s. Even now the two countries are already looking at the possibility of concrete cooperation in areas such as manufacturing and research and development in the electronic industry and energy efficient and energy saving technologies. The presence of Japanese companies in India increased by 16 per cent in 2013.

The Andhra Pradesh State Investment Promotion Board has given the approval to six major investment proposals that will have a total investment of Rs 6,500 crore (US\$ 1.03 billion). The proposals include those by multinational companies such as PepsiCo, Cadbury, Colgate, Johnson & Johnson, Gerda Steels and ITC. Pepsi Co's unit will be the largest beverages plant in India with an investment of Rs 1,200 crore (US\$ 191.06 million). Similarly, Cadbury is establishing its facility in Sri City with an investment of Rs 2,500 crore (US\$ 398.07 million). In an effort to improve capital flows into the country, the Indian government has allowed 100 per cent FDI under automatic route in storage and warehousing, which includes warehousing of agriculture products with refrigeration. The government has also set up National Centre for Cold Chain Development (NCCD) which will look at standards and protocols for cold chain infrastructure.

Based on the recommendations of Foreign Investment Promotion Board (FIPB) made on December 30, 2013, the Indian government has agreed to five FDI proposal amounting to Rs 1133.41 crore (US\$ 180.16 million) approximately. On November 13, 2013, it had approved 12 proposals of FDI amounting to Rs 821.63 crore (US\$ 130.73 million) approximately. The FIPB has also approved Swedish clothing major Hennes & Mauritz (H&M) AB's proposal to open 50 stores across India. The investment will be around Rs 720 crore (US\$ 114.61 million).

Future Outlook

India is estimated to require around US\$ 1 trillion during the 12th Five-Year Plan period (2012–17), to fund infrastructure in sectors such as roads, airports and ports. The government is in the process of liberalizing FDI norms in construction activities and railways, which could bring in investments to meet the target.

The government is also relaxing FDI norms in other sectors for foreign investors to invest. FDI in multi-brand retail has

been allowed up to 51 per cent. The minimum requirement for the FDI is US\$ 100 million, of which at least 50 per cent must be invested in 'backend infrastructure' within three years following the initiation of the FDI. FDI limit in single-brand retail has been increased to 100 per cent; 49 per cent will be under the automatic route and the rest through the FIPB route.

Foreign Direct Investment in China:

In 1990's FDI in China was one of the major success stories, starting with less than \$19 billion in 1990, the stock of FDI rose to above \$300 billion at the end of 1999.

Before 1979, virtually no foreign firms operated in China and Chinese leaders used to take pride in this fact. Even grants offered by foreign governments or institutions were viewed with suspicion.

From 1949 until 1979, China had been closed entirely to FDI but as part of a series of reforms a partial opening was implemented in 1979 such that highly limited access to the Chinese market was granted to foreign investors (Rosen, 1999 op. cit.)

Several factors contributed to this 'open door policy' of China.

- a. The disastrous economic performance before 1979 under rigid planning.
- b. The glorious performance of four Asian tigers and particularly Hong- Kong and Taiwan.

Features of FDI in China:

At that time China sought access to foreign capital and technology but also sought to avoid creating any competition whatsoever for domestic state-owned enterprises from foreign owned firms. The result was that only a small amount of FDI entered China over the next 12 years and this was concentrated in sectors in which either domestic Chinese firms did not participate (hotel development, tourism) or ones where China urgently needed access to foreign technology (oil field exploration and development). Further 1992; further reforms were also taken that led to the surge of FDI in China.

Inbound FDI has played an important role in China's economic development and export success. According to the Ministry of Commerce (MOFCOM), foreign invested enterprises account for over half of China's exports and

imports; they provide for 30% of Chinese industrial output, and generate 22% of industrial profits while employing only 10% of labor – because of their high productivity. Evidence on technology spillovers is more limited, but industries with higher FDI seem to have higher productivity increases than other industries, suggesting a positive effect. Importantly, foreign investment has catalyzed China's economic reform.

Together, these contributions have supported China in maintaining a record-high 10 percent growth rate during most of the 1980-2010 period. FDI policies in China have evolved alongside economic development and strengthened institutional capacity. A gradual and prudent approach has been taken in the process of liberalization. When market institutions were not fully in place in 1980s and 1990s, China experimented with opening up to foreign investment in selected coastal cities and in special economic zones/ industrial parks with a focus on attracting export-oriented manufacturing FDI. Corresponding to China's shift of its development goal from an emphasis on GDP growth towards a more harmonious balanced development, China made a radical commitment to services liberalization in its accession to WTO. This has triggered a shift of FDI to service industries. By 2009, FDI in services increased 3 times from that in 2000, while manufacturing FDI in China increased 81 percent. Regional production networks in East Asia grew substantially in the past few years and were largely aligned with China as their center. The results have been extraordinary. Thousands of multinational corporations have invested in China.

The challenge for China now is to attract the right kind of FDI as it strives to rebalance its economy, improve the environment, and move up the value chain. As a result, recent FDI strategies have taken a more selective approach, to attract environmentally sustainable, energy efficient, and technologically advanced industries. As befits its economic global rank China is providing a level playing field for all firms, domestic or foreign alike.

Future Projection:

China continues to demonstrate its sustainability to attract FDI with the news that in the first four months of 2014 it managed to attract \$40.3bn,

In FDI's inaugural ranking, Shanghai has been named Chinese Province of the Future for 2014/15, with particularly impressive performances in the Business Friendliness and Connectivity categories, as well as placing second in the

Economic Potential and Human Capital and Lifestyle categories.

By 2020, China's exports are projected to be nearly 10% of the world's total.

FDI into China is predicted to rise from ¥6.6 trillion (£667 billion) in 2014 to ¥13 trillion (£1.3 trillion) in 2020. FDI as a share of China's overall GDP will also rise by 2.8% over the next six years – more than the US or EU.

Recent report released by World Bank mentioned that even if growth moderates in future, China is likely to become a high-income economy and the world's largest economy before 2030, notwithstanding the fact that its per capita income would still be a fraction of the average in advanced economies.

Conclusion and Summary

Foreign direct investment (FDI) has played an important role in the process of globalization during the past two decades. The rapid expansion in FDI by multinational enterprises since the mid-eighties may be attributed to significant changes in technologies, greater liberalization of trade and investment regimes, and deregulation and privatization of markets in many countries including developing countries like India.

Capital formation is an important determinant of economic growth. While domestic investments add to the capital stock in an economy, FDI plays a complementary role in overall capital formation and in filling the gap between domestic savings and investment. At the macro-level, FDI is a non-debt-creating source of additional external finances.

At the micro-level, FDI is expected to boost output, technology, skill levels, employment and linkages with other sectors and regions of the host economy.

References

- Branstetter, Lee G.* and Robert C. Freenstra (2002). "Trade and Foreign Investment in China: A Political Economy Approach," *Journal of International Economics*, December 2002.
- Dawson, Chester (2011). "For Toyota, Patriotism and Profits May not Mix," *The Wall Street Journal*, November 29, pp. A1-A6.
- Freenstra, Robert C. and Alan M. Taylor (2013). *International Economics*. fifth edition, McGraw Hill Publishers.
- Graham, E.M. and E. Wada (2001). "Foreign Direct Investment in China: Effects on Growth and Economic Performance." in Drysdale, P (ed) *Achieving High Growth*, Oxford University Press.
- Hooda, Sapna (2011). "A Study of FDI and Indian Economy," Ph.D. Thesis submitted to University of Kurukshetra, Haryana, 2011.
- Kaur, Rajdeep, Nikita, and Reena (2014). "Trends and Flow of Foreign Direct Investment in India." *Abhinav National Monthly Refereed Journal of Research in Commerce & Management*, Volume 3, Issue 4.
- Leke, Acha, Susan Lund, James Manyika, and Sree Ramaswamy (2014). "*Lions go Global: Deepening Africa's ties to the United States.*" report by McKinsey and Company.
- Malhotra, Bhavya (2014). "Foreign Direct Investment: Impact on Indian Economy." *Global Journal of Business Management and Information Technology*, ISSN 2278-3679 Volume 4, Number 1, pp. 17-23.
- World Bank and DRCSC (2013). "China 2030 : building a modern, harmonious, and creative society," World Bank, Washington, DC.

Websites:

- <http://www.worldbank.org>
- <http://www.vpmthane.org>
- <http://www.reuters.com/article/2014/>

Indian MFIs Pattern: Analytical Model Building

Madhumita Guha Majumder, Mohan Gopinath, and P. Janaki Ramudu

A b s t r a c t

The objectives of this paper are to analyse the efficiency pattern and study the impact of legal structure on the performance of Micro Finance Institutions (MFIs) in India. We have attempted in this paper to measure the efficiency of MFIs in India on two grounds, social efficiency and financial efficiency. Based on the results we have categorized the firms in to highly efficient firms, financial efficient firms, socially efficient firms and highly inefficient firms. Our results indicate that there were 65 highly efficient firms and 63 highly inefficient firms and there are a few MFIs in the category of socially efficient and financially efficient.

Keywords: *efficiency pattern, financial efficiency, social efficiency, data envelopment approach (DEA).*



Dr. Madhumita Guha Majumder
Professor, Dept of General Management
Alliance School of Business, Alliance University
Anekal, Bangalore 562 106
Email: madhumita.gm@alliance.edu.in

Dr. Mohan Gopinath
Professor, Dept of OB and HR
Alliance University
Anekal, Bangalore 562 106
Email: mohan.g@alliance.edu.in

Dr. P. Janaki Ramudu
Dean Academics
Alliance University
Anekal, Bangalore 562 106
Email: anakiramudu.p@alliance.edu.in

There is nothing sacrosanct or venerable about being poor; they are the wretched of the earth and everything should be done to bring them out of their poverty by governments and the society. The problem with developing countries is that though they have a large sized affluent middle class, the larger numbers which consist the poorer sections of the population, far outweigh the impact the former can have on the economy. At this point we are not getting into the nuances of what defines 'poor'; enough has been said by the Planning Commission recently about this aspect and also by various political parties. But to go back to the point we were making, the question of this impact by the poor on the economy is equally true of India as it is for other developing countries and micro-lending is one way this imbalance between the well to do and the poor can be tackled. It is not a silver bullet and at best it can only narrow the differences between the rich and the poor, the differences between the people who own a refrigerator and those who do not, the differences between people who send their children to a decent school and those who do not, or the differences between people who own can buy a decent set of clothes and those who cannot. The list is endless and it is not our intention to dwell on the possible entries to the

list in and detail them *ad infinitum*. What we propose in this paper is to look at micro-lending (microfinance, alternatively) in India and evaluate whether the model building approach is adequate for it to be a success. One of the advantages of focusing on microfinance in alleviating the lot of people with lower incomes is that microfinance is not subject to the volatilities which beset large scale lending undertaken by banks. Therefore it is not possible for a sub prime crisis to hit microfinance lending. The sector remains relatively secure from that perspective. A microfinance institution, if it fails, cannot impact the economy in the way the failure of a large bank can.

From a global perspective, it is surmised that in the aftermath of the global financial crisis, microfinance has begun to enter a more mature and sustainable growth phase. It has expanded rapidly over the years, and the focus of the microfinance sector has turned towards accelerating the improvements in governance, responsible finance practices and regulatory capacity. Coupled with this, the management of risk which has become a post-crisis priority for all financial institutions has improved considerably in the microfinance sector. This is important because of the fact that it is offering an increasingly diversified range of innovative financial services to the poor. Quite apart from this, microfinance is well positioned to take further advantage of technological and market developments.

Literature Survey: Studies relating to MFIs are legion but we have restricted ourselves to analyzing literature taking into account the relevance of the topic of this paper. Bossone and Lee (2004) formulate and test empirically what they call the “systemic scale economies” (SSE) hypothesis, whereby “the production of financial intermediation services shows increasing returns in the scale of the system where it takes place. Noting that financial intermediaries are nowadays more and more integrated in infrastructural networks of various kinds, they argue that the efficiency of financial intermediation should reflect, *inter alia*, the efficiency of the networks supporting their activity. In this sense we can also speak of systemic scale effects. In simple words, their hypothesis holds that an intermediary of any given size operating in a large domestic financial system should be expected to be more cost-efficient than the same intermediary (hypothetically) operating in a smaller system, all else being equal. If this hypothesis is established empirically, its main implication is that intermediaries in small financial systems face greater structural challenges in achieving market

viability than those in larger systems.” The relevance of this comment to our paper lies in the fact that in India, many microfinance institutions are small in size and so would be facing the challenges in achieving market viability as indicated by the authors.

The microfinance industry, according to Meyer, Nagarajan and Dunn (2000) has made good progress in improving understanding about issues related to micro-finance institutional performance. Increasingly, outreach and sustainability have been adopted as the two main criteria used to assess the performance of Microfinance Organizations (MFOs). The concept of institutional sustainability has been debated and refined, methods have been developed to use MFO accounting data to measure sustainability, and several studies have reported the level of and trends in the sustainability of many MFOs. The conceptualization and measurement of outreach is not as well developed. On the one hand, some aspects of outreach are easy to measure (e.g. the number and gender of clients served) and are regularly reported by MFOs. On the other hand, little progress has been made in developing simple tools to measure the depth of poverty of the clients served, which is how far down in the income distribution do the MFOs reach. A frequent question is whether or not MFOs reach the poorest of the poor. Loan size is often used as a proxy indicator for the poverty level of clients in the absence of better measures, but it is suspected of being a poor approximation. This question is especially valid in the case of microfinance institutions which cater only to the urban poor. The size of the loan in these cases is not often a true indicator of the poverty level of the borrower. The urban family applying for a microfinance loan could have more members of the family working and thus boosting the income.

Hodgson, Breban, Ford, Streatfield and Urwin (2000) indicate that investment efficiency is a function of the risk, return and total cost of an investment management structure, subject to the fiduciary and other constraints within which investors must operate. Institutional investors implement their investment policies through investment management structures. In this paper the aim is to enhance the investment management structure by broadening the financial objectives, by recognizing the effect of behavioural issues and by incorporating governance constraints. The authors therefore suggest that investment efficiency should be considered as a combination of financial efficiency and non-financial efficiency.

Kumar and Singh (2011) dealt with the inter-temporal variations of technical efficiency in the small scale industrial sector of Punjab and Haryana and compared the performance of both states with the small scale industrial sector of India. Data spanning over the period 1972-73 to 2006-07 has been utilized to estimate technical efficiency with the help of data envelopment analysis (DEA) based upon efficiency scores. The empirical analysis confirms that there exists 0.176 percent and 0.470 percent technical inefficiency in the small scale industrial sectors of Punjab and Haryana, respectively. However, at the aggregated All-India level, the technical inefficiency score is 0.449. Thus, the small scale industrial sector of Punjab is comparatively more efficient than that of Haryana and all-India. The study is highly location specific and so the conclusions may have the bias of being prone to being highly focused.

Berggren (2012) states that in recent years, microfinance has evolved as an alternative method of providing credit to poor borrowers in developing countries. Despite high expectations and appraisals, the performance of microfinance institutions has been found to differ significantly between different countries. In its largest sample, this study covers 72 developing countries from all over the world. The results of this study generally support the hypothesis that informal institutions are important determinants of microfinance performance. All in all, this study concludes that microfinance can work as a viable substitute for formal financial institutions in countries where formal institutions are weak, but cooperative informal institutions are strong. This study and its conclusions would therefore be very appropriate for Indian conditions.

Hasan, Sanchez, and Ngene (2012) investigate the technical and scale efficiencies of MFIs in the Middle East and North Africa (MENA) countries in the provision of financial services. This study also aims at tracing out the source of inefficiencies. The paper finds low technical efficiency for all MFIs under both intermediation and the production approaches of Data Envelopment Analysis (DEA) methodology. This means that MFIs are wasting input resources (input oriented inefficient) and are not producing enough outputs (making loan, raising funds, and obtaining more borrowers per staff). The paper also does not find any improvement in those efficiencies during the period 2000-2005.

Das (2012) states that entrepreneurship on a small scale is the only solution to the problems of unemployment and

proper utilization of both human and non-human resources and improving the living conditions of the poor masses. The basic rationale of developing these industries is that they provide immediate large scale employment, ensure more equitable distribution of income, encourage decentralization of industries and eradicate poverty and unemployment. During the last three decades, many countries of the world have experienced the need and importance of entrepreneurship. The main object of this paper is to study the existing literature on entrepreneurship through Micro finance linkage with Self Help Group (SHG) in India in general and the North East Region in particular. The analysis of this study is based on secondary sources.

Gupta, Chawla and Harkawat (2012) are of the opinion based on their research that millions of people in developing countries have been given access to formal financial services through **microfinance** programs. Nevertheless, millions of potential clients still remain un-served and the demand for financial services far exceeds the currently available supply. In order to provide financial services to the poor on continuing basis, **microfinance** business needs to be sustainable. Moreover, it is observed that **microfinance** organizations have had various degrees of sustainability. One such sustainability is the financial sustainability but the problem is that financial sustainability has been defined by various researchers differently. This paper will draw on some points made by Vyasulu (2013) and also on a few facts thrown up by the review of literature. According to Vyasulu, "the fact remains that India is a nation of great diversity and complexity, governed by a State elected at intervals according to our constitution. Its work is made even more complicated by the powerful forces of globalization which have already had a major impact on India. We have moved from a State that believed in controls to one that has liberalized considerably and this liberalization has led to rapid growth in the last two decades. But the freer play of market forces has also led to increasing inequality."

It is perhaps in this context that State and Market are presented as alternatives. We need to use market forces, but if the State abdicates its responsibility to govern and regulate this market, by stepping in when necessary, inequality and social tensions will increase. Emerging India has to find the correct balance.

Objectives and methodology of the study: Having reviewed the most pertinent past research papers, we understand that there are not many researches focussing on measuring the

performance of MFIs through analytical model. In fact, earlier researches did not even attempt systematically to measure the performance while it is very critical to measure the performance and sustainability of MFIs. The sustainability can be forecast on the basis of efficiency analysis of MFIs over a period of time. Thus keeping in view the gap in research we set the following objectives for our research.

- To analyse the efficiency pattern of MFIs in India,
- To study the impact of legal structure on driving the efficiency, and
- To analyse the contribution of age in measuring the efficiency of firms.

The study is based on secondary data published in Microfinance Information eXchange, known as MIX database and is carried out on 170 Indian firms, in the age group of one year to nineteen years. It is confined to five major type of firms, namely, Banks, Non-Banking Financial Institutions (NBFI), Credit Unions Cooperatives, Rural Banks and NGOs. There are one hundred and eighty seven firms which were chosen initially. However, one hundred and seventy firms have valid data and therefore, the sample size of the study is limited to 170 Indian firms.

While we were deciding on the most suitable tool of analysis, we found that extensive literature review (Oral and Yolalan, 1990; Tulkens, 1993; Vassiloglou and Giokas, 1999) reveals that the efficiency may best be modelled through Data Envelopment Analysis (DEA) and thus our study adopts the views of Nadiya Marakkath and T. Radha Ramana (Nadiya Marakkath and T. Radha Ramana, 2012) that the efficiency of MFIs should be analysed from two perspectives; financial perspective and social perspective. Accordingly, input and output have been chosen to analyse the financial and social efficiency of the firms. Further, literature shows that there are primarily two approaches, intermediation approach and production approach, to understand the operations of financial institutions. Debdata Pal, (2010) observes that financial institutions may be considered as production units, as they produce deposits and loans, using capital and number of employees as inputs. They may also be considered as financial intermediaries if they are in the process of making profit from assets and other inputs. As extending credit to the poor section of the society is the primary financial service that the MFIs perform, we have considered them as production units, rather than intermediary units.

As MFIs are not allowed to mobilise deposits in India, the study has considered only loans as output and not considered deposits to analyse the financial efficiency of the firm. It may be measured by the capacity to generate the loan and also the amount of revenue earned on the same. Therefore, **Gross Loan Portfolio** and **Financial Revenue** are included as two outputs in analysing the financial efficiency of the firms. **Assets**, **OperatingCost** and the **Number of Loan Personnel** have been considered as the key inputs in the DEA model, as B.Gutierrez-Nieto et al. (2009) have mentioned that these are the standard inputs in analysing the efficiency of financial institutions. The social efficiency is essentially evaluated by the depth of outreach. There are two proxy variables called social efficiency and financial efficiency which indicate the depth of outreach. However, the study has taken the definition from the MIX database, in which the indicator of depth of outreach has been clearly defined as 'Average Loan Balance per Borrower'; the ratio of Gross Loan Portfolio to Number of Active Borrowers. The assumption here is that the lesser the average loan balance per borrower, the deeper the reach of the microcredit. The present study has considered the average portfolio outstanding as of April 2013 for each firm. The other indicator is 'Number of Active Borrowers'. Therefore, the **Average Loan Balance per Borrower** and the **Number of Active Borrowers** are the two key outputs, which have been included in the model in analysing the social efficiency of the firms.

We have analysed the efficiency of firms on the basis of the following assumptions:

- a) Variable Returns to Scale is considered, as there exists scale inefficiencies represented by increasing returns to scale or decreasing returns to scale, reflected in DEA output in Exhibit 1 and 2.
- b) Development of an output-oriented model, rather than input-based model.

We also used One-way Analysis of Variance (ANOVA) and Regression Model in the process of data analysis.

Empirical analysis, results and discussions: We have analysed and interpreted the results in chronological order of the objectives set. The results and discussions pertaining to the efficiency pattern of MFIs in India are as follows. Evaluation of the firms on the basis of their financial and

social efficiency performance reveals the following observations.

The results and discussions pertaining to the first objective of the study, i.e analysing the pattern of efficiency of MFIs in India are as follows. The results shown in table 1 reveal that only 12.35% firms experience economies of scale in the

context of financial efficiency, whereas a reverse scenario is observed under social efficiency criterion in table 2. Most of the firms (151 firms out of 170 i.e., 88.82%) enjoy economies of scale as they are experience increasing returns to scale. It indicates that a large percentage (88.82%) of firms can increase their depth of outreach with the same set of inputs.

Table 1: Financial Efficiency: Economies of Scale

Returns to Scale	No. of firms	Percentage
IRS	21	12.35%
DRS	133	78.24%
100% Efficiency	16	9.41%
Sample Size	170	100.00%

Table 2: Social Efficiency: Economies of Scale

Returns to Scale	No. of firms	Percentage
IRS	151	88.82%
DRS	3	1.76%
100% Efficiency	16	9.41%
Sample Size	170	100.00%

The results further show that only 16 firms (9.41%) are operating on efficiency frontier as they have reached the 100% efficiency both in terms of financial and social criteria.

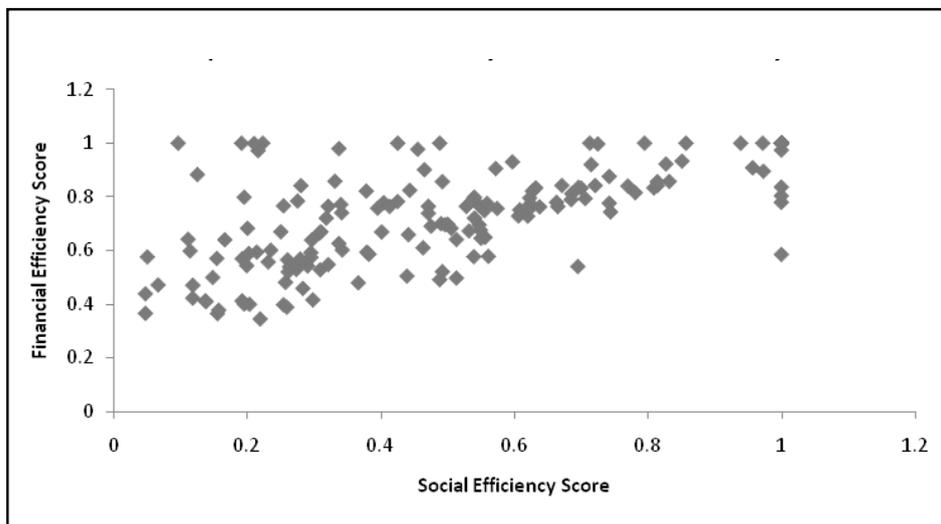
When we refer to Table 3 it is further evidenced by the fact that the mean financial efficiency is 73.4% under the assumption of variable returns to scale. Therefore the level of inefficiency is only 26.6%. However, the mean social efficiency score is 51%, indicating that 49% inefficiency exists in terms of depth of outreach. In other words, the depth of outreach could be augmented by 49% with the same set of inputs, if the firm follows the best practice.

Table 3: Mean Efficiency Score

Financial Efficiency	73.35%	
Social Efficiency	51.00%	

We have classified the firms primarily into the following four categories on the basis of a scatter depicted in graph1.

- i. The firms, which have achieved more than average efficiency score on both on financial and social efficiency parameters, are classified as ‘Highly Efficient Firms’ which may be termed as market leaders,
- ii. The firms, scoring more than average financial score and less than average social efficiency score, have been referred as ‘Financially Efficient Firms,’
- iii. The firms, scoring more than average social efficiency and less than average financial efficiency, are categorised as ‘Socially Efficient Firms,’ and finally,
- iv. The firms, having less than average scores on both financial and social efficiency, are called as ‘Highly Inefficient Firms’ or aspirant firms.



Graph 1: Financial Efficiency versus Social Efficiency

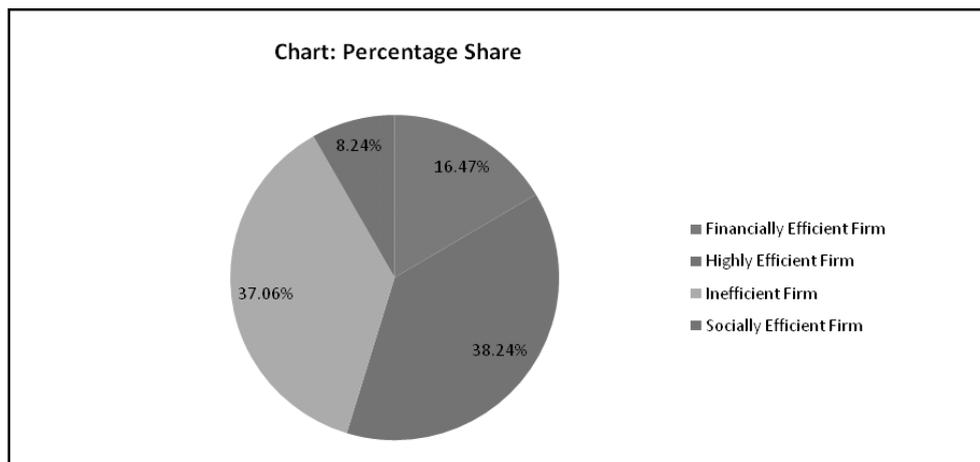
The above pattern of Indian MFIs is summarized in table 4 below.

Table 4: Efficiency pattern

Firm Category	No. of Firms	Percentage Share
Financially Efficient Firm	28	16.47%
Highly Efficient Firm	65	38.24%
Inefficient Firm	63	37.06%
Socially Efficient Firm	14	8.24%
Total	170	100.00%

According to the above classification, the study has identified that 38.24% firms are highly efficient firms and almost an equal percentage (37.06%) firms fall under inefficient category. Only 8.24% firms are financially stable

and 16.47% of the firms have gained the depth of outreach and they are not financially sustainable. A complete scenario is reflected through the pie chart below.



Interestingly, only fifteen firms have attained 100% efficiency on both financial and social efficiency parameters. They are: Bandhan, BASIX, HiH, Equitas, GTFS, Janalakshmi Financial Services Pvt. Ltd., KMUCBL, Mahasemam, Need to India, Pustikar, SEIL, SKDRDP, SPED, Swadhaar, Ujjivan. These firms may be identified as 'transformed firms.' so that the others may follow their path.

The present study has considered four types of MFIs, which are legally characterised as Non-Banking Financial Institutions (NBFI), Credit Unions, Rural Banks and NGOs.

The second primary objective of the current study is to observe whether NBFIs are financially more efficient than

those of NGOs. The study has carried out a two stage analysis in order to analyse the financial strength of the firms. In the first phase, an analysis of variance (ANOVA) has been carried out to examine whether significant difference in financial efficiency exists across the various categories of firms. We have formulated the following hypothesis for this purpose.

H₁: The financial efficiency varies across the various categories of firms.

The ANOVA output is presented in Tables 5 and 5a:

Table 5: Group Efficiency

Legal Group	Sample Size	Mean Financial Efficiency	Std. Deviation	Std. Error
NBFI	70	0.8125	0.127989	0.015298
Rural Banks	1	1	.	.
NGO	82	0.6584	0.189803	0.02096
Total	170	0.7335	0.186986	0.014341

Table 5a: ANOVA (Financial Efficiency)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	0.978	3	0.326	10.98	0
Within Groups	4.93	166	0.03		
Total	5.909	169			

As ANOVA is significant, we reject the H₁ and conclude that there is enough statistical evidence to believe that the financial efficiencies are different across the firms.

Further, in order to analyse whether NBFIs are financially more efficient than those of NGOs, a second hypothesis has been formulated as follows:

H₂: The NBFIs are financially more efficient than NGOs.

A 't' test has been performed during the second phase of analysis and the result is produced in tables 6 and 6a.

Table 6: Group Statistics: Financial Efficiency

Legal Status	N	Mean	Std. Deviation	Std. Error Mean
NBFI	70	.81251	.127989	.015298
NGO	82	.65840	.189803	.020960

Table 6a: Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	12.958	.000	5.765	150	.000	.154112	.026734
Equal variances not assumed			5.939	142.733	.000	.154112	.025949

A significant 't' result demonstrates that NBFIs perform financially better than NGOs and hence we accept H_2 and concludes that financial performance of MFIs is better than that of NGOs in Indian context.

As NGOs are non-profit oriented firms and their primary objective is to benefit the poor section of the society, the study compares the social outreach of NGOs with other

MFIs. A two stage procedure has once again been carried out. In stage I, it is observed whether significant difference exists in terms of social outreach of the firms. The following hypothesis is formulated in this regard.

H_3 : The depth of social outreach varies across the firms.

The ANOVA results are presented in tables 7 and 7a.

Table 7: Group statistics

Legal Group	Sample Size	Mean Social Efficiency	Std. Deviation	Std. Error
Credit Unions	17	.41341	.278120	.067454
Rural Banks	1	.93900	.	.
NGO	82	.39711	.249782	.027584
Total	170	.50994	.280976	.021550

Table 7a: ANOVA (Social Efficiency)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.950	3	.983	15.710	.000
Within Groups	10.392	166	.063		
Total	13.342	169			

We have enough statistical evidence to reject H_3 and conclude that depth of social outreach is not the same across the firms. This result drives the second stage of analysis to study particularly whether NGOs are performing better socially than the other major group, called NBFIs. A 't' test has been carried out to address the following hypothesis:

H_4 : The NBFIs are socially more efficient than NGOs.

The result turned out to be significant and therefore we have enough statistical evidence to accept H_4 and conclude that depth of outreach of NBFIs is better than that of NGOs.

It is quite apparent that establishment of firms, in terms of number of years, help them to gain more efficiency both

financially as well as socially. We have therefore, developed two separate regression models to study the same. While first models takes financial efficiency as the dependent variable, the second one considers social efficiency as the dependent variable, to measure the contribution of age of a firm in gaining efficiency. The results are depicted in tables 8a and 8b. The results clearly indicate that age is statistically significant to explain financial and social efficiency of a firm. Model 1 reveals that every year that a MFI gains maturity, its financial efficiency is expected to go up by 0.0189 units and model 2 reflects the social efficiency is expected to go up by 0.0297 units.

Table 8a: Regression

Model 1: Dependent Variable: Financial Efficiency				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.618266819	0.027300422	22.64679	0.00000
Age	0.018932986	0.003900294	4.854245	0.00000

Table 8b: Regression results

Model 2: Dependent Variable: Social Efficiency				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.32897665	0.04075911	8.071242	0.00000
Age	0.029722676	0.005823079	5.104288	0.00000

Conclusion: The concept of Micro Finance Institutions in India has still been in its pre-mature stage due to the lack of Governmental priority and support. Though Reserve Bank of India has been trying its level best to bring MFIs into day - day domain of the rural population, financial inclusion still has got long way to go. Keeping the importance of

regulating MFI concept, we attempted to study the efficiency pattern of MFIs in India and the impact of legal mechanism in the country. The results indicate that the financial efficiency of MFIs varied across primarily driven by the age of the institution. Based on the results, we conclude that social efficiency and financial efficiency of

MFIs in India are interrelated and significantly depended on the age of the institution. We believe that the model that we developed in the paper would be of great use to MFIs and regulators, and policy makers.

References:

B. Gutierrez-Nieto, C. Serrano-Cinca and C. Mar Molinero (2009). "Social efficiency in microfinance institutions." *Journal of the Operational Research Society* 60, 104-119.

Debdatta Pal (2010). "Measuring Technical Efficiency of Microfinance Institutions in India." *Indian Journal of Agricultural Economics*. Oct-Dec, 65,4; ABI/INFORM Complete. 639-657

Nadiya Marakkath and T. Radha Ramana (2012). "Assessing the efficiency and sustainable performance of Indian Microfinance Institutions." *Cost Management*. Sep/Oct 2012; 26, 5; ABI/INFORM Complete. 6-19.

Oral M. and R. Yolalan (1990). "An empirical study on measuring operating efficiency and profitability of bank branches." *Eur J Opl Res* 46: 282-294.

Tulkens H. (1993). "On FDH Efficiency Analysis: Some methodological issues and applications to retail banking, courts and urban transit." *J Productivity Anal* 4: 183-210.

Vassiloglou M. and D. Giokas (1999). "A study of the relative efficiency of bank branches: An application of data envelopment analysis." *J Opl Res Soc* 41: 591-597.

Causal Nexus Between Export and Growth: BRICS Nations

Srinivasan P.

**A
b
s
t
r
a
c
t**

Abstract: The present paper investigates the causal nexus between exports and economic growth for the sample of BRICS nations, namely, Brazil, Russia, India, China and South Africa, using Johansen cointegration and VECM Granger Causality test. The Cointegration test result confirms a significant relationship between exports and GDP in the long-term. The Causality analysis exhibits a long-run bidirectional causal link between GDP and exports for the BRICS nations except Brazil. One-way long-run causal link runs from GDP to exports is observed for Brazil. Besides, the empirical results neither support ELG nor GLE hypothesis in the short-run for Brazil and Russia. Feedback effects between exports and GDP for India and unidirectional causality from GDP to exports in the case of China were found in the short-run.

Keywords: *Export-led Growth Strategy, Cointegration, Causality, BRICS Nations*

JEL Classification: F10, F14, F43



Dr. Srinivasan P.
Assistant Professor
Xavier Institute of Management &
Entrepreneurship,
Electronics City, Phase II, Hosur Road,
Bangalore 560100, Karnataka, India.
E-mail: srinivasaneco@gmail.com
Mobile: +91-9611273853

The Exports-Growth nexus has received increasing attention from academics and policy makers. In the international trade literature, the Export-Led Growth (ELG) strategy postulates that export-oriented policies contribute to economic growth. Over decades the export-led growth pattern delivered convincing arguments to be followed. First, export can be a catalyst for output growth as a component of aggregate output. Second, export sector may generate positive externalities on non-export sectors through more efficient management styles and improved production techniques (Feder, 1982). Third, exports expansion is one of the most important source of foreign exchange that can be used to ease the pressure on the balance of payment and to reduce the impact of external shocks on domestic economy, and improve the country's ability to import the necessary capital and intermediate goods unavailable domestically, leading in turn to economic growth (McKinnon, 1964, Balassa, 1978 and Buffie, 1992) and finally, the exports growth increases factor productivity due to gains obtained from increasing returns to scale, by catering to the larger foreign market (Makki and Somvaru, 2004).

On the other side, economic growth may also have effects on export growth, or growth-led (GLE) hypothesis. Kaldor (1967) argues economic growth via increased productivity that in turn translating into reduced unit cost is expected to act as a stimulus to export expansion. Jung and Marshall (1985) point out that internal growth mechanism better explains export growth rather than the reverse. Bhagwati (1988) postulates an idea that the GLE hypothesis is likely, unless antitrade bias results from the economic growth-induced supply and demand. Neoclassical trade theory supports these notions, as it suggests that other factors aside from exports are responsible for economic growth. Not surprisingly, such insight is more amplified when the fact that size of economy may play a significant role in determining country's dependency to world market as mentioned previously. Economic growth leads to enhancement of skills and technology, with this increased efficiency creating a comparative advantage for the country that facilitates exports. Venables (1996) further points out that in new trade theory, the market structure and output expansion may trigger significant changes in exports through a process of "cumulative causation." In addition, market failure with subsequent government intervention may also affect to the growth-led hypothesis (Giles and Williams, 2000a, 2000b). A feedback causal relationship between exports and economic growth might also be the case. Helpman and Krugman (1985) argue exports may rise from realization of economies of scale due to productivity gains. Exports expansion may further enable cost reductions, which in turn may result in further productivity gains. Bhagwati (1988) also points out that an increase in trade will generate more income, which in turn leads to more trade.

From the above theoretical arguments, it appears that the debate of whether exports are growth-enhancing or growth-retarding in the emerging economies remains largely an empirical question. Considerable volume of research has been conducted on the subject during the last two decades to scrutinize the role of exports on economic growth or ELG hypothesis, using either cross countries or time series data, on the ground of inquiry whether an export-led outward orienting policy is preferable to an inward orienting trade policy, but still there exist conflicting evidences in the literature regarding the export and growth relationship.

Review of Literature

Early studies of Michealy (1977), Balassa (1978, 1985), Bhagwati (1988), Feder (1982) and others support the ELG

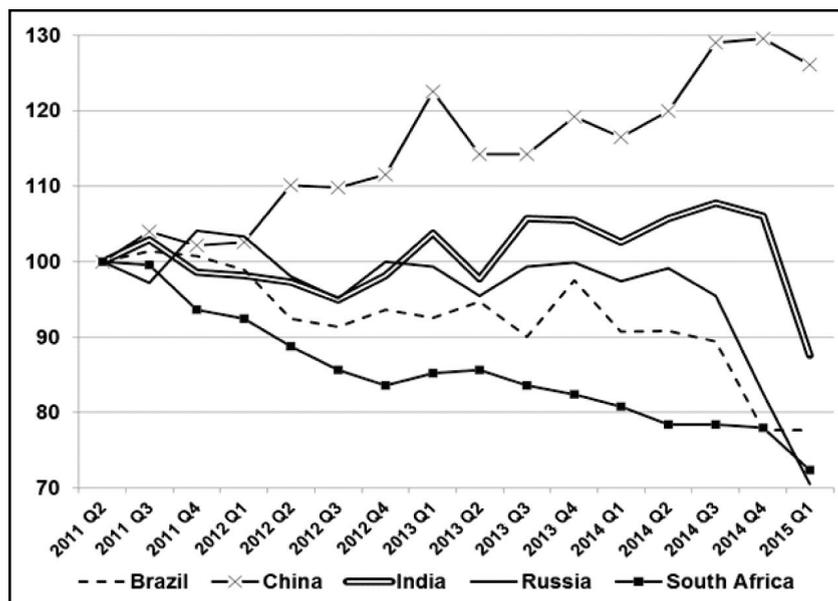
hypothesis, usually by showing that exports had a positive correlation with output or growth. However, they assume—rather than demonstrate—that export growth has a positive causal effect on GDP growth, ignoring that a positive correlation between these two variables can also be compatible with causality running from output growth to export growth. In response to these criticisms, several country-specific time series causality analyses have come up to examine the validity of ELG hypothesis. Since the mid-1980s, Granger causality tests frequently have been used to find the relationship between export and economic growth. The first study, using this methodology, was conducted by Jung and Marshall (1985). They investigated the causal relationship between export and growth for 37 countries and found that export promotion policies just supported in 4 countries. Darrat (1987) investigated the ELG hypothesis for South Korea, Singapore, Hong Kong and Taiwan for the period 1955-1982. Although his findings indicated a positive relationship between export growth and economic growth under the investigated period, Granger causality test results did not support the ELG hypothesis for the three countries except for Korea. Rahman and Mustafa (1997) selected 13 Asian developing countries for different time periods due to the data availability and found cointegration between the real GDP and the real export for all countries. Yet, their findings about the direction are mixed in short run and long run for the different countries. Alici and Ucal (2003) find unidirectional causality running from export growth to output growth for Turkey. Recent studies of Kaushik and Klein (2008), Dash (2009), Nanda and Panda (2011), Devi (2013) and Agrawal (2015) for India, Chigusiwa et al. (2011) for Zimbabwe, Seabra and Galimberti (2012) for 72 countries, Dritsaki and Stiakakis (2014) for Croatia and Paul (2014) for Bangladesh supports the ELG strategy and suggest that export is an integral factor in determining economic growth.

On the other side, studies such as Greenway and Sapsford (1994) for 14 countries, Richards (2001) for Panama, Panas and Vamvoukas (2002) for Greece, Love and Chandra (2005) for South Asia, Reppas and Christopoulos (2005) for African and Asian countries, Srivastava and Kapoor (2007) for India and Hussain (2014) for Pakistan found the opposite direction of causality or else rejected the ELG hypothesis. Besides, the several studies such as Anwar and Sampath (2000) for 97 countries, Chandra (2003) and Ray (2011) for India, Mah (2005) for China, Husein (2009) for Jordan and Mohsen and Firouzjaee (2011) for 73 developing nations supports bi-directional causality between exports and economic

growth. Finally, many studies even fail to find any long-term relation (or co integration) between exports and economic output, such as those of Sharma and Panagiotidis (2004) for India, Oskooee and Economidou (2009) for less developed countries and Waithe et al. (2011) for Mexico.

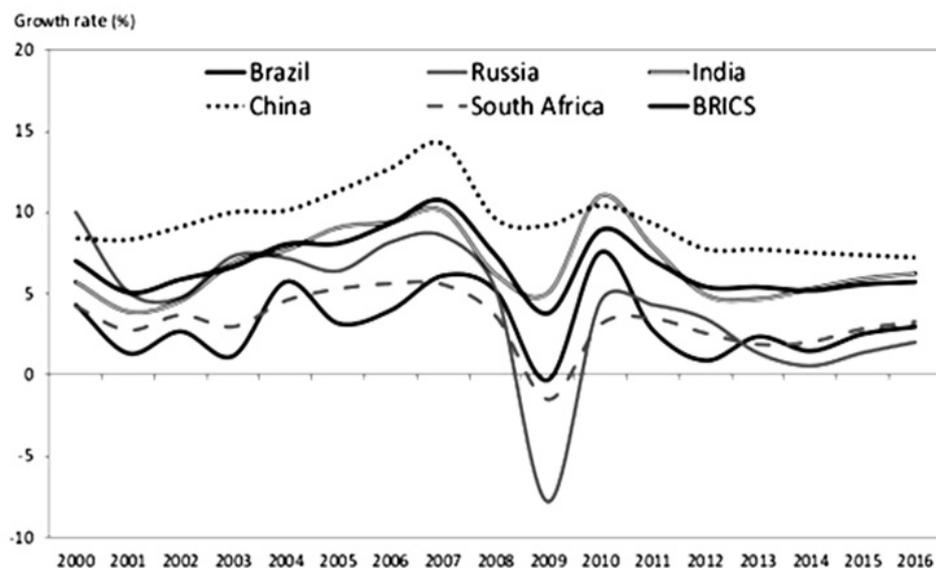
The literature reviewed above pertaining to the causal nexus between export and economic growth in emerging economies is well established. However, the results appear to be ambiguous. Most of the studies employed cointegration test and VECM to examine the causal relationship between export and economic growth. It revealed that Johansen’s cointegration test and VEC model are the superior techniques to investigate the issue. Johansen’s cointegration test examines the presence of (cointegrating) long-run relationship between economic variables in the model. A principal feature of co-integrated variables was that their time paths were influenced by the extent of any deviation from the long-run equilibrium (Enders, 1995). Thus, vector error correction model that incorporates error correction term represents the per cent of correction to any deviation in long-run equilibrium in a single period and also represents how fast the deviations in the long-run equilibrium are corrected. Besides, the VECM provide inferences about the direction of causation between the variables. Thus, the

study can be done by employing Johansen’s cointegration test and VEC model to investigate the causality between export and economic growth in the BRICS nations - viz., Brazil, Russia, India, China and South Africa which have experienced rapid growth in Gross Domestic Product (GDP) and their contribution to world trade has also increased dramatically in the last decade. The share of BRICS in global trade has increased significantly over the last two decades. In 1990, the BRICS accounted for only 3 percent of global trade and it rose to 19 percent in 2011. However, the export performance of the BRICS has been disappointing in recent years as depicted in Figure 1. At the end of May 2015, the OECD published data on the first quarter’s exports of leading trading nations, including those for BRICS, is shown in Figure 1. This figure showed that, in US dollar terms, the total value of each BRICS nation’s exports was falling. Worse, the exports of Brazil, India, Russia and South Africa have essentially stagnated over the past four years or deteriorated significantly. China’s exports appear to have plateaued at the end of 2014 (see Figure 1). Figure 1 shows only China’s exports are now worth more in US dollar terms than four years ago—and even there 2015 Q1 data is disturbing.



Source: OECD. For each series, the data was normalised to 100 in 2011 Q2.

Figure 1. Total value of each BRICS nation’s exports (US dollar terms)



Source: World Development Indicators published by World Bank

Figure 2. The GDP growth rate of BRICS nation

At 7th BRICS Summit, the BRICS economies are planned to launch New Development Bank (as an alternative to international financing institutions like the World Bank and the International Monetary Fund) and to counterbalance the Western-dominated financial system includes a pool of currency reserves worth of \$100 billion in order to secure economic growth, improve export competitiveness, maintain financial stability and speed up structural reforms. Besides, the BRICS leaders at 7th BRICS Summit supported the creation of a platform of joint discussion for trade cooperation amongst BRICS countries through enhanced dialogue between the BRICS Export Credit Agencies (ECAs). Specifically, the BRICS countries have agreed to the establishment of an annual BRICS ECA meeting with the purpose of exploring opportunities for cooperation and future joint action to promote exports among BRICS and to other countries. These policy initiatives of BRICS nation related to trade with growing number of bilateral treaties and multilateral investment agreements would improve the export competitiveness of BRICS countries and stimulate economic growth.

Despite of above initiatives which are not yet implemented, with the recent deterioration in exports, the GDP growth rate of BRICS nation has also slowed down in recent years (see Figure 2), thus it is necessary to identify the causal

relations between export and economic growth that would help policy makers of BRICS countries to recognize whether exports contribute to economic growth or vice versa and to suggest appropriate export policies in a way that would enhance growth and development of their respective economies.

Objective of the Study

The present paper attempts to investigate the causal nexus between export and economic growth in BRICS nations. The rest of the article is organized in the following sequence: starting with a review of related literature it goes on to discuss the methodology of the study. The final two sections present the empirical findings and the concluding remarks respectively.

Methodology

Johansen's (1988) cointegration approach and Vector Error Correction Model (VECM) have been employed to investigate the causal nexus between export and economic growth in BRICS nations. Before doing cointegration analysis, it is necessary to test the stationary of the series. The Augmented Dickey-Fuller (1979) test was employed to infer the stationary of the series. If the series are non-stationary in levels and stationary in differences, then there

is a chance of cointegration relationship between them which reveals the long-run relationship between the series.

Johansen Cointegration test

Johansen’s cointegration test has been employed to investigate the long-run relationship between two variables. Besides, the causal relationship between exports and economic growth investigated by estimating the following Vector Error Correction Model (VECM) (Johansen, 1988):

$$\Delta X_t = \sum_{i=1}^{p-1} \Gamma_i \Delta X_{t-i} + \Pi X_{t-1} + \varepsilon_t \quad ; \quad \varepsilon_t | \Omega_{t-1} \sim \text{distr}(0, H_t) \quad (1)$$

where X_t is the 2x1 vector (E_t, G_t)’ of log-exports and log-GDP, respectively, Δ denotes the first difference operator, ε_t is a 2x1 vector of residuals ($\varepsilon_{E,t}, \varepsilon_{G,t}$)’ that follow an as-yet-unspecified conditional distribution with mean zero and time-varying covariance matrix, H_t . The VECM specification contains information on both the short- and long-run adjustment to changes in X_t , via the estimated parameters Γ_i and Π , respectively.

There are two likelihood ratio tests that can be employed to identify the co-integration between the two series. The variables are cointegrated if and only if a single cointegrating equation exists. The first statistic λ_{trace} tests the number of cointegrating vectors is zero or one, and the other λ_{max} tests whether a single cointegrating equation is sufficient or if two are required. In general, if r cointegrating vector is correct. The following test statistics can be constructed as:

$$\lambda_{\text{trace}}(r) = -T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i) \quad (2)$$

$$\lambda_{\text{max}}(r, r+1) = -T \ln(1 - \hat{\lambda}_{r+1}) \quad (3)$$

where $\hat{\lambda}_i$ are the eigen values obtained from the estimate of the Π matrix and T is the number of usable observations. The λ_{trace} tests the null that there are at most r cointegrating vectors, against the alternative that the number of cointegrating vectors is greater than r and the λ_{max} tests the null that the number of cointegrating vectors is r , against the alternative of $r + 1$. Critical values for the λ_{trace} and λ_{max} statistics are provided by Osterwald-Lenum (1992).

Johansen and Juselius (1990) showed that the coefficient matrix Π contains the essential information about the relationship between E_t and G_t . Specifically, if $\text{rank}(\Pi) = 0$, then Π is 2x2 zero matrix implying that there is no cointegration relationship between E_t and G_t . In this case the VECM reduces to a VAR model in first differences. If Π has a full rank, that is $\text{rank}(\Pi) = 2$, then all variables in X_t are $I(0)$ and the appropriate modelling strategy is to estimate a VAR model in levels. If Π has a reduced rank, that is $\text{rank}(\Pi) = 1$, then there is a single cointegrating relationship between E_t (exports) and G_t (GDP), which is given by any row of matrix Π and the expression ΠX_{t-1} is the error correction term. In this case, Π can be factored into two separate matrices α and β , both of dimensions 2x1, where 1 represents the rank of Π , such as $\Pi = \alpha\beta'$, where β' represents the vector of cointegrating parameters and α is the vector of error-correction coefficients measuring the speed of convergence to the long-run steady state.

Vector Error Correction Model (VECM)

If exports and GDP are cointegrated then causality must exist in at least one direction (Granger, 1988). Granger causality can identify whether two variables move one after the other or contemporaneously. When they move contemporaneously, one provides no information for characterising the other. If “X causes Y,” then changes in X should precede changes in Y. Consider the VECM specification of Equation (1), which can be written as follows:

$$\Delta E_t = \alpha_0 + \sum_{i=1}^{p-1} \alpha_{1i} \Delta E_{t-i} + \sum_{i=1}^{p-1} \alpha_{2i} \Delta G_{t-i} + \alpha_3 z_{t-1} + u_t \quad (4)$$

$$\Delta G_t = \beta_0 + \sum_{i=1}^{p-1} \beta_{1i} \Delta E_{t-i} + \sum_{i=1}^{p-1} \beta_{2i} \Delta G_{t-i} + \beta_3 z_{t-1} + v_t \quad (5)$$

In the above equations of Vector Error Correction Model, G_t is Granger cause to E_t if the total of α_{2j} in equation (4) is significant without taking into account β_{1i} in equation (5). On the other hand, E_t would Granger cause to G_t if the total of β_{1i} in equation (5) is significant without taking into account α_{2j} in equation (4). Bilateral causal relationship

exists between E_t and G_t if both the total of α_{2j} and the total of β_{1i} are significant. These hypotheses can be tested by applying Wald tests on the joint significance of the lagged estimated coefficients of ΔE_{t-1} and ΔG_{t-1} . The order of optimal lag length (p) was chosen by minimizing the Schwarz Information Criteria (SIC). Coefficient α_3 and β_3 are known as error correction coefficient because both these coefficients show some changes in $\text{Log} E$ and $\text{Log} G$ react to cointegrating error which is $\text{Log} E_{t-1} - \alpha_0 - \alpha_1 \text{Log} G_{t-1} = \varepsilon_{t-1}$ or $\text{Log} G_{t-1} - \beta_0 - \beta_1 \text{Log} E_{t-1} = \varepsilon_{t-1}$. Its rationale is that because the error will lead to the correction caused by conditions imposed on α_3 and β_3 to ensure that the stability condition is met that is $(-1 < \alpha_3 \leq 0)$ and $(0 \leq \beta_3 < 1)$. For instance, positive error, $\varepsilon_{t-1} > 0$ exists due to $\text{Log} E_{t-1} > (\alpha_0 + \alpha_1 \text{Log} G_{t-1})$. A negative error correction coefficient value (α_3) in the first equation that is equation (4) is to ensure the decline in changes to $\text{Log} E_t$ (ΔE_t), while a positive error correction coefficient (β_3) in the second equation that is equation (5) is to ensure the rise in the changes to $\text{Log} G_t$ (ΔG_t).

Hypotheses

Hypothesis: 1

Null Hypothesis (Ho): There is no significant long-run relationship between Exports and GDP in BRICS nations

Alternate Hypothesis (H1): There is significant long-run relationship between Exports and GDP in BRICS nations

Hypothesis: 2

Null Hypothesis (Ho): Exports do not Granger Cause GDP in BRICS nations in the Short-run

Alternate Hypothesis (H1): Exports do Granger Cause GDP in BRICS nations in the Short-run

Hypothesis: 3

Null Hypothesis (Ho): GDP do not Granger Cause Exports in BRICS nations in the Short-run

Alternate Hypothesis (H1): GDP do Granger Cause Exports in BRICS nations in the Short-run

Hypothesis: 4

Null Hypothesis (Ho): Exports do not Granger Cause GDP in BRICS nations in the Long-run

Alternate Hypothesis (H1): Exports do Granger Cause GDP in BRICS nations in the Long-run

Hypothesis: 5

Null Hypothesis (Ho): GDP do not Granger Cause Exports in BRICS nations in the Long-run

Alternate Hypothesis (H1): GDP do Granger Cause Exports in BRICS nations in the Long-run

Data

The variables used in this study are Exports of goods and services (constant 2000 US\$) and GDP (constant 2000 US\$) for the BRICS countries viz., Brazil, Russia, India, China and South Africa. The sample period covers annual data from 1990 to 2014. All the data is obtained from World Development Indicators, The World Bank.

Empirical Results and Discussion

Order of Integration

As a preliminary step, the present study tested the stationarity of the selected time series data for which Augmented Dickey Fuller (ADF) test was conducted and its results were presented in Table 1. The ADF test results reveal that the null hypothesis of unit root for the selected variables such as exports and Gross Domestic Product was not rejected in the case of levels. However, the null hypothesis of unit root is rejected for first differenced variables, indicating both the variables of each country, viz. Brazil, Russia, India, China, and South Africa, are first differenced stationary and integrated at the order of one, $I(1)$.

Table 1: Augmented Dickey-Fuller Test for Unit Root

Country	Variables	ADF Test Statistics	
		Level	First Difference
BRAZIL	Exports	-2.141	-3.223**
	GDP	0.207	-4.808*
RUSSIA	Exports	-0.268	-4.003*
	GDP	-0.159	-3.280**
INDIA	Exports	-0.698	-4.444*
	GDP	1.894	-4.513*
CHINA	Exports	-1.448	-4.531*
	GDP	-1.640	-3.126**
SOUTH AFRICA	Exports	-1.526	-4.719*
	GDP	0.824	-3.037**

Notes: * & ** – indicate significance at the one and five per cent level respectively. Optimal lag length is determined by the Schwarz Information Criterion.

Testing for Cointegration

Once the exports and GDP series of each BRICS nation are integrated at same order, the Cointegration test is employed to examine the long-run relationship between exports and GDP series of BRICS nations, respectively. The Johansen Cointegration is sensitive to the selection of optimal lag length and VAR lag order selection criteria results are presented in the Table 2. The necessary lag length of both the variables for respective country is determined based on the Akaike Information Criterion (AIC)¹ and it reveals optimal lag of four for Brazil, four for Russia, five for India, three for China and one for South Africa.

¹ One of the most commonly used information criteria is AIC. The idea of AIC (Akaike, 1973) is to select the model that minimises the negative likelihood penalised by the number of parameters as specified as follows: $AIC = 2 \log P(L) + 2P$, where L refers to the likelihood under the fitted model and P is the number of parameters in the model.

Specifically, AIC is aimed at finding the best approximating model to the unknown true data generating process and its applications.

Table 2: Results of Optimal Lag Length Selection Criteria

BRAZIL: VAR Lag Order Selection Criteria for Exports and GDP						
Lag	LogL	LR	FPE	AIC	SIC	HQ
0	18.428	--	0.0006	-1.6428	-1.5432	-1.6234
1	84.249	111.89	1.38e-06	-7.8249	-7.5262	-7.7666
2	94.109	14.790*	7.79e-07	-8.4109	-7.9130	-8.3137
3	100.64	8.4927	6.30e-07*	-8.6642	-7.9672*	-8.5281
4	105.27	5.0988	6.38e-07	-8.7277*	-7.8316	-8.5528*
5	108.89	3.2536	7.59e-07	-8.6892	-7.5939	-8.4754
RUSSIA: VAR Lag Order Selection Criteria for Exports and GDP						
0	27.99	--	0.0002	-2.5993	-2.4997	-2.5798
1	83.61	94.564*	1.47e-06	-7.7618	-7.4631*	-7.7035
2	87.33	5.5796	1.53e-06	-7.7338	-7.2360	-7.6366
3	93.11	7.5104	1.34e-06	-7.9116	-7.2145	-7.7755
4	99.29	6.7974	1.16e-06*	-8.1295*	-7.2333	-7.9546*
5	101.67	2.1414	1.56e-06	-7.9674	-6.8721	-7.7536
INDIA: VAR Lag Order Selection Criteria for Exports and GDP						
0	5.9717	--	0.0023	-0.3971	-0.2976	-0.3777
1	74.813	117.03	3.54e-06	-6.8813	-6.5826*	-6.8230
2	77.061	3.3718	4.29e-06	-6.7061	-6.2082	-6.6089
3	84.172	9.2447	3.27e-06	-7.0172	-6.3202	-6.8812
4	85.028	0.9411	4.83e-06	-6.7028	-5.8066	-6.5279
5	98.642	12.252*	2.11e-06*	-7.6642*	-6.5689	-7.4504*
CHINA: VAR Lag Order Selection Criteria for Exports and GDP						
0	-3.8291	--	0.0061	0.5829	0.6824	0.6023
1	83.501	148.46	1.48e-06	-7.7501	-7.4514*	-7.6918
2	86.641	4.7097	1.64e-06	-7.6641	-7.1662	-7.5669
3	95.374	11.353*	1.07e-06*	-8.1374*	-7.4404	-8.0013*
4	96.844	1.6174	1.48e-06	-7.8844	-6.9883	-7.7095
5	101.06	3.7971	1.66e-06	-7.9063	-6.8110	-7.6925
SOUTH AFRICA: VAR Lag Order Selection Criteria for Exports and GDP						
0	36.987	--	0.0001	-3.4987	-3.3991	-3.4793
1	99.388	106.08*	3.03e-07*	-9.3388*	-9.0400*	-9.2804*
2	101.60	3.3315	3.68e-07	-9.1609	-8.6630	-9.0637
3	103.86	2.9316	4.56e-07	-8.9864	-8.2894	-8.8503
4	106.60	3.0156	5.59e-07	-8.8605	-7.9644	-8.6856
5	111.57	4.4732	5.80e-07	-8.9575	-7.8622	-8.7437

Notes: * indicates lag order selected by the criterion at five percent significance level. LR denotes sequential modified Likelihood Ratio test statistic. FPE represents Final prediction error. AIC shows Akaike information criterion. SIC denotes Schwarz information criterion and HQ shows Hannan-Quinn information criterion.

Johansen's cointegration test was performed to examine the long-run relationship between the exports and GDP of respective BRICS nations and its result are presented in Table-3. Johansen (1988) and Johansen and Juselius (1990) had developed Maximum-Likelihood (ML) procedure to assess the cointegrating relationship. Johansen's ML procedure comprises of trace and maximal-eigen value tests. The null hypothesis of trace test that the number of

cointegrating vectors is less than or equal to r is tested against a general alternative hypothesis. However, the null hypothesis of maximal-eigen value test that the number of cointegrating vectors is r is checked against a specific alternative hypothesis of $r+1$ cointegrating vectors. Table 3

Specifically, AIC is aimed at finding the best approximating model to the unknown true data generating process and its applications.

reports the results for both trace and maximal eigen value tests to identify the long-run relationship between the variables. The results of Johansen's maximum eigen (λ_{\max}) and trace statistics (λ_{trace}) indicate the presence of one cointegrating vector between the exports and GDP series of Brazil, Russia, India and South Africa at five percent level respectively. No cointegrating vector is being identified in the trace test for China while maximal eigenvalue test indicates one cointegrating vector. Johansen and Juselius (1990) pointed out that maximal eigen value test was more

powerful than trace test by providing more definite results as intercept terms have been included in the test. As such, we consider the maximal eigen value test results that a single cointegrating vector exists between exports and GDP of China. The Johansen cointegration test results support for one cointegration vector implying that both exports and economic growth of respective BRICS nations are tend to move in the long-run path. We can, therefore, conclude that there exists a long-term relationship between economic growth and exports in BRICS nations.

Table 3: Johansen Cointegration test

Null Hypothesis	Alternative Hypothesis	Trace Statistics	5% Critical Value	Max Eigen statistics	5% Critical Value	Inference
BRAZIL						
$H_0: r = 0$	$H_1: r = 1$	51.808**	25.872	39.364**	19.387	Cointegrated
$H_0: r \leq 1$	$H_1: r = 2$	12.444	12.517	12.444	12.517	
RUSSIA						
$H_0: r = 0$	$H_1: r = 1$	28.026**	25.872	20.225**	19.387	Cointegrated
$H_0: r \leq 1$	$H_1: r = 2$	8.8012	12.517	8.801	12.517	
INDIA						
$H_0: r = 0$	$H_1: r = 1$	43.076**	25.872	34.422**	19.387	Cointegrated
$H_0: r \leq 1$	$H_1: r = 2$	8.653	12.517	8.653	12.517	
CHINA						
$H_0: r = 0$	$H_1: r = 1$	9.4410	12.320	12.943**	11.224	Cointegrated
$H_0: r \leq 1$	$H_1: r = 2$	3.502	4.129	3.502	4.1299	
SOUTH AFRICA						
$H_0: r = 0$	$H_1: r = 1$	23.382**	20.261	16.656**	15.89210	Cointegrated
$H_0: r = 1$	$H_1: r = 2$	6.7260	9.164	6.726	9.164546	

Notes: r is the number of cointegrating vector . Critical values are noted from MacKinnon -Haug-Michelis (1999), and ** - denote the significance at five percent level.

Testing for Causality

The dynamic VECM representation provides us with a framework to test for the causal dynamics in the Granger sense among the exports and GDP series through both short-run and error-correction channels (ECTs) of causation. Short-run market causality test will determine whether exports series respond instantaneously to changes in GDP series or vice versa. The coefficient of the lagged error correction term (ECTs) shows the portion by which the long-run disequilibrium in the dependant variable is being

corrected in each short period to have stable long-run relationship. If both short-run causality coefficient and ECTs are insignificant, the variable can be treated as exogenous to the system (Masih and Masih 1997). The Granger Causality test can be estimated based on VECM framework, that is, with the inclusion of the error correction term. The VECM Granger Causality estimates are presented in Table 4. The coefficients of the Error Correction terms (ECTs) provide some insight into the adjustment process of exports and GDP series towards equilibrium condition.

Table 4: VECM Granger Causality test

Country	Dependent Variable	Source of Causation			Direction of Causation	
		Short-run (Wald χ^2 statistics)		Long-Run (t-statistics)	Short-Run	Long-Run
		ΔG	ΔE	ECT		
BRAZIL	ΔG	---	3.5173 (0.475)	0.1473 [0.146]	Independent	$\Delta G \rightarrow \Delta E$
	ΔE	1.9919 (0.737)	---	-3.7700** [-2.037]		
RUSSIA	ΔG	---	5.3314 (0.254)	-1.1468** [-2.726]	Independent	$\Delta G \leftrightarrow \Delta E$
	ΔE	5.1689 (0.270)	---	-0.8149** [-2.223]		
INDIA	ΔG	---	6.9376* (0.008)	-0.5419* [-3.334]	$\Delta G \leftrightarrow \Delta E$	$\Delta G \leftrightarrow \Delta E$
	ΔE	15.713* (0.000)	---	-1.6349* [-2.580]		
CHINA	ΔG	---	3.9152 (0.270)	-0.3062*** [-1.670]	$\Delta G \rightarrow \Delta E$	$\Delta G \leftrightarrow \Delta E$
	ΔE	8.6247** (0.034)	---	2.3935** [1.872]		
SOUTH AFRICA	ΔG	---	0.9550 (0.328)	-0.0841** [-2.267]	Independent	$\Delta G \leftrightarrow \Delta E$
	ΔE	1.8342 (0.175)	---	-0.4953* [-4.305]		

Notes: *, ** and *** indicate the significance at one, five & ten percent level, respectively. Optimal lag length is determined by the Akaike Information Criterion (AIC). Parentheses () and [] indicate t-statistics and Probability values, respectively.

The table result shows that coefficients of the error correction term (ECT) in the export equations of respective nation, viz. Russia, India, China and South Africa are statistically significant and have expected sign, and also the coefficients of the ECT in the GDP equations of these nations are statistically significant, suggesting a bidirectional error correction. This shows that economic growth and exports have long-run bidirectional relationship in Russia, India, China and South Africa. The error correction term of export equation of Brazil is found to be statistically significant at five percent level while error correction term of GDP equation is insignificant, implying long-run unidirectional causality runs from economic growth to exports in Brazil. Moreover, the empirical findings reveal that the lagged coefficients of export and GDP (joint statistical significance of the lagged variables are represented by Wald-Chi square statistics) for Brazil, Russia and South Africa are found to be statistically insignificant implying that exports and economic growth are independent of each other in the short-run which are in support of neither export-led growth hypothesis nor growth-led export hypothesis in

Brazil, Russia and South Africa. For India, the Wald-Chi square statistics of export and GDP are found to be statistically significant at one percent level, suggesting bidirectional relationship in the short-run. In the case of China, the lagged coefficients of GDP represented by Wald-Chi square statistic is found to be statistically significant at five percent level, implying one-way causation runs from economic growth to exports which is in support of growth-led export hypothesis in the short-run. The study findings are consistent with the findings of previous studies such as Ray (2011) and Kumari and Malhotra (2014) for India, Liu et al. (2002) and Tsen (2010) for China, Cuadros et al. (2004) and Ricardo et al. (2015) for Brazil and Pradhan (2009) for South Africa.

Conclusion

The present paper explores the causal relationship between exports and economic growth for the sample of BRICS nations, namely, Brazil, Russia, India, China and South Africa, using Johansen cointegration and VECM Granger Causality test. Annual time series on exports of goods and

services and GDP are obtained from World Development Indicators, The World Bank for the period from 1990 to 2014. The Cointegration test result confirms a significant relationship between exports and GDP in the long-term.

The Causality analysis exhibit a long-run bidirectional causal link between GDP and exports for the BRICS nations except Brazil. One-way long-run causal link runs from GDP to exports is observed for Brazil. Besides, the empirical results neither support ELG nor GLE hypothesis in the short-run for Brazil and Russia. Feedback effects between exports and GDP for India and unidirectional causality from GDP to exports in the case of China were found in the short-run.

The present study suggests that the enhancement of country's economic growth performance or strategies was much needed to augment the exports rather than implementation of export-led growth strategies or liberalized export-oriented policy efforts such as increase in the incentives and subsidies to exporters and operationalization of Export Processing Zones (EPZs) in the case of Brazil.

For rest of the BRICS nations, the economic growth performance is the driving force behind the increase in exports and vice versa, henceforth the study recommend these nations to make their exports more competitive in the global markets, and to improve the level of productivity of export sector, adopt more pragmatic and gradual approaches which includes the diversification of export commodities, infrastructure development, further more reduction in tariff barriers and quantitative restrictions, increase in the incentives and subsidies to exporters and operationalization of Export Processing Zones (EPZs). Concurrently, they should adopt effective policy measures that would substantially enlarge and diversify their economic base, improve local skills and build up a stock of human capital recourses capabilities and enhance economic stability in order to encourage as well as benefit from exports growth.

Scope for further Research

The future study may examine whether exports of goods and services can be a powerful positive force in the reduction of poverty and inequality in developing countries by creating jobs, especially for unskilled workers, and by reducing the inequality between workers of different skills and educational levels, and between different regions of BRICS nations. Besides, this research work can be extended by investigating causal relationship between the sectoral

exports and economic growth based on disaggregated quarterly data in the context of BRICS nations. This may be immensely useful for national policy makers in making decisions related to bilateral and multilateral trade policies and strategies for economic development.

References

- Agrawal, P. (2015). "The role of exports in India's economic growth." *The Journal of International Trade & Economic Development: An International and Comparative Review*, 24, 835-859.
- Alici, A. A. and M. S. Ucal (2003). "Foreign Direct Investment, Exports and Output Growth of Turkey: Causality Analysis." Paper presented in European Trade Study Group (ETSG) Fifth Annual Conference, (September), Madrid.
- Anwar, M. and R. Sampath (2000). "Exports and Economic Growth." *Indian Economic Journal*, 47, 79-88.
- Balassa, B. (1978). "Exports and economic growth: further evidence." *Journal of Development Economics*, 5, 181-189
- Balassa, B. (1978). "Exports and Economic Growth: Further Evidence." *Journal of Development Economics*, 5, 181-189.
- Balassa, B. (1985). "Exports, policy choices, and economic growth in developing countries after the 1973 oil shock." *Journal of Development Economics*, 4, 23-35.
- Bhagwati, J. (1988). "Export Promoting Trade Strategies: Issues and Evidence." *The World Bank Research Observer*, 3, 27-57.
- Buffie E. (1992). "On the condition for export-led growth." *Canadian Journal of Economics*, 25, 211-225.
- Chandra, R. (2003). "Reinvestigating Export-led Growth in India Using a Multivariate Cointegration Framework," *Journal of Developing Areas*, 37, 73-86.
- Chigusiwa, L., S. Bindu, V. Mudavanhu, L. Muchabaiwa, and D. Muzambani (2011). "Export-Led Growth Hypothesis in Zimbabwe: Does Export Composition Matter?" *International Journal of Economic Resources*, 2, 111-129.

- Cuadros, A., V. Orts, and M. Alguacil (2004). "Openness and growth: Re-examining foreign direct investment, trade and output linkages in Latin America." *The Journal of Development Studies*, 40, 167–192.
- Darrat, A. F. (1987). "Are exports an engine of growth? Another look at the evidence." *Applied Economics*, 19, 277-283.
- Dash, R. K. (2009). "Revisited Export-Led Growth Hypothesis: An Empirical Study on India." *South Asia Economic Journal*, 10, 305-324.
- Devi, S. S. (2013). "Export, economic growth and causality- A case for India." *Journal of Global Economy*, 9, 21-27.
- Dickey, D. and W. A. Fuller (1979). Distribution of the Estimates for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74: 427-431.
- Dritsaki, C. and E. Stiakakis (2014). "Foreign direct investments, exports, and economic growth in Croatia: A time series analysis." *Procedia Economics and Finance*, 14, 181–190.
- Feder, G. (1982). "On Exports and Economic Growth." *Journal of Development Economics*, 12, 59-73.
- Giles, J. A. and C. L. Williams (2000a). "Export-Led Growth: A Survey of the Empirical Literature and Some Non-Causality Results-Part 1." *Journal of International Trade and Economic Development*, 9, 261-337.
- Giles, J. A. and C. L. Williams (2000b). "Export-Led Growth: A Survey of the Empirical Literature and Some Non-Causality Results-Part 2." *Journal of International Trade and Economic Development*, 9, 445-470.
- Granger, C. W. J., (1988). 'Some Recent Developments in a Concept of Causality.' *Journal of Econometrics*, 16, 1, pp. 121-130.
- Greenway, D. and D. Sapsford (1994). "Exports, Growth and Liberalization: an Evaluation." *Journal of Policy Modeling*, 16, 165-186.
- Helpman, E. and P. R. Krugman (1985). "Market Structure and Foreign Trade." *Cambridge MIT Press*.
- Husein, J. (2009). "Export Led Growth Hypothesis: A Multivariate Cointegration and Causality Evidence for Jordan." *The Journal of Developing Areas*, 42, 253-266.
- Hussain, M. (2014). "Export and GDP in Pakistan: Evidence from Causality and Cointegration Analysis." *International Journal of Management Cases*, 16, 37-46.
- Johansen, S. (1988). "Statistical Analysis and Cointegrating Vectors." *Journal of Economic Dynamics and Control*, 12, 231-254.
- Johansen, S. and K. Juselius, (1990). "Maximum Likelihood Estimation and Inference on Co-integration with Applications for the Demand for Money." *Oxford Bulletin of Economics and Statistics*, 52, 169-210.
- Jung, S. J., and P. J. Marshall (1985). "Exports, Growth and Causality in Developing Countries." *Journal of Development Economics*, 18, 1–12.
- Kaldor, N. (1967). "Strategic Factors in Economic Development." Ithaca, New York: Cornell University Press.
- Kaushik, K. K. and K. K. Klein (2008). "Export growth, export instability, investment and Economic growth in India: A time series analysis." *Journal of Developing Areas*, 41, 155-170.
- Kumari, D. and N. Malhotra (2014). "Trade-Led Growth in India and China: A Comparative Analysis." *Journal of International and Global Economic Studies*, 7, 68-88.
- Liu, X., Burridge, P. and P. J. N. Sinclair (2010). "Relationships between economic growth, foreign direct investment and trade: evidence from China." *Applied Economics*, 34, 1433-1440.
- Love, J. and R. Chandra (2005). "Testing export-led growth in South Asia." *Journal of Economic Studies*, 32, 132-145.

- MacKinnon, J. G., A. Haug, and L. Michelis. (1999), "Numerical Distribution Functions of Likelihood Ratio Tests for Cointegration." *Journal of Applied Econometrics*, 14, 563-577.
- Mah, J. S. (2005). "Export expansion, economic growth and causality in China." *Applied Economics Letters*, 12, 105-107.
- Makki, S. S. and A. Somwaru, (2004). "Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries." *American Journal of Agricultural Economics*, 86, 795-801
- Masih, A. M. M. and R. Masih (1997). "On the temporal causal relationship between energy consumption, real income and prices: some new evidence from Asian-energy dependent NICs based on a multivariate cointegration vector error-correction approach," *Journal of Policy Modeling*, 19, 417-440.
- McKinnon, R. (1964). "Foreign exchange constraint in economic development and efficient aid allocation." *Economic Journal*, 74, 338-409.
- Michaely, M. (1977). "Exports and growth: An empirical investigation." *Journal of Development Economics*, 4, 49-53.
- Mohsen, M. and B. A. Firouzjaee (2011). "Granger Causality Relationship between Export Growth and GDP Growth in Developing Countries: Panel Cointegration Approach." *International Journal of Humanities and Social Science*, 1, 223-231.
- Nanda, S. and A. K. Panda (2011). "An empirical assessment of export led growth hypothesis in the context of Indian economy." *Indian Journal of Economics and Business*, 10, 481-494.
- Oskooee, M. B. and C. Economidou (2009). "Export Led Growth Hypothesis Revisited: A Panel Cointegration Approach." *Scientific Journal of Administrative Development*, 3, 40-55.
- Osterwald-Lenum, M. (1992). "A Note with the Quantiles of the Asymptotic Distribution of the Maximum Likelihood Cointegration Rank Test Statistics." *Oxford Bulletin of Economics and Statistics*, 54, 461-472.
- Panas, E. and G. Vamvoukas (2002). "Further evidence on the Export-Led Growth Hypothesis." *Applied Economics Letters*, 9, 731-735.
- Paul B. R. (2014). "Testing Export-Led Growth in Bangladesh: An ARDL Bounds Test Approach." *International Journal of Trade, Economics and Finance*, 5, 1-5.
- Pradhan, R. P., U. V. Kumar, M. Kumar, L. I. P. Ray, A. Saurabh, and S. Basak (2009). "Causality between Export and Economic Growth in O5: Using Error Correction Model." in *Forecasting Financial Markets in India*, R. P. Pradhan, Ed., Allied Publishers Ltd., New Delhi, India.
- Rahman, M and M. Mustafa (1997). "Dynamics of Real Exports and Real Economic Growths in 13 Selected Asian Countries." *Journal of Economic Development*, 22, 81-95.
- Ray, S. (2011). "A Causality Analysis on the Empirical Nexus between Export and Economic Growth: Evidence from India." *International Affairs and Global Strategy*, 1, 24-39.
- Reppas, P. A. and D. K. Christopoulos (2005). "The export-output growth nexus: Evidence from African and Asian countries." *Journal of Policy Modeling*, 27, 929-940.
- Ricardo, A. A., R. T. Joanio, and S. Cristiane (2015). "Export-led growth vs growth-led exports: what matters for the Brazilian growth experience after trade liberalization?" *Review of Keynesian Economics*, 3, 108-128.
- Richards D.G. (2001). "Exports as a determinant of long-run growth in Paraguay, 1966-1996." *Journal of Development Studies*, 38, 128-146.
- Seabra, F. and J. K. Galimberti (2012). "Conditioned Export-Led Growth Hypothesis: A Panel Threshold Regressions Approach." *Revista de Economia*, 38, 7-24.

-
- Sharma, A. and T. Panagiotidis (2004). "An Analysis of Exports and Growth in India: Cointegration and Causality Evidence (1971 – 2001)." *Review of Development Economics*, 9, 232-248.
- Srivastava, D. K. and G. Kapoor (2007). "Test of Export-Led Growth and Growth- Led Export Hypotheses in Indian Context: An Econometric Analysis for the Period of 1951-2004." *Asia Pacific Management Review*, 12, 113-115.
- Tsen W. H. (2010). "Exports, Domestic Demand and Economic Growth in China: Granger Causality Analysis." *Review of Development Economics*, 14, 625-639.
- Venables, A. J. (1996). "Equilibrium Locations of Vertically Linked Industries." *International Economic Review*, 37, 341-59.
- Waithe K., T. Lordeb, and B. Francis (2011). "Export-led Growth: A Case Study of Mexico." *International Journal of Business, Humanities and Technology*, 1, 33-44.

Determinants of Leverage: Indian Transport Equipment Sector

D. Vijayalakshmi

**A
b
s
t
r
a
c
t**

The performance and survival of a firm depend on the choice of the source of funds and its effective utilization. The decision on the composition of funds, otherwise, known as 'capital structure' is an essential decision, which influences the risk and return of the investors. Leverage plays an essential role in framing the capital structure. Transport Equipment Sector is a capital intensive sector, where greater prominence has been given in framing the capital structure. In this backdrop, the study makes an attempt to identify and analyse the determinants of leverage of Indian Transport Equipment sector. Year wise analysis, summary statistics and a panel data approach have been applied to analyse the data. The study reveals that the variables, namely, profitability, size and NDTS are the key determinants of leverage of Indian Transport Equipment Sector.

Keywords: Capital structure, Leverage, Profitability, Size, Non-debt tax shield.



Dr. D. Vijayalakshmi
Assistant Professor
PSGR Krishnammal College for Women
Peelamedu, Coimbatore – 641 004
Tamilnadu, India
Email id: viji5681@gmail.com
Mob : 9791361718

Every firm needs funds to run and manage the business. The success of any firm depends on the effective utilization of funds procured. The principal sources of finance of a firm are owners' equity and the borrowed money. The company can raise funds either by increasing the owners' funds or the creditors' funds or both. If the firm has raised funds by way of equity shares or plough back of its earnings, the claims of the owners increase. The claim of the creditors increases when the funds are raised by borrowing. The firm should have the plan of spending the borrowed money effectively by taking into account its earning capacity; otherwise, it would lead to the wealth destruction of the firm. The management has to frame a suitable debt policy to increase the owners' wealth. The decision taken by the firms with respect to capital structure has a great impact on their success. Therefore, a proper mix of debt and equity would determine the path to increase the shareholder value. Firms have to analyse the factors determining the leverage before framing its capital structure. In this background, the present paper makes an attempt to identify and analyse the determinants of leverage of Indian

Transport Equipment Sector for the period 1995-96 to 2009-10.

Transport Equipment

Transport Equipment Sector consists of automobile and auto ancillaries. Automobile industry is one of the core sectors of Indian manufacturing industry. It has been moving towards international standards to meet the needs of the customers globally. It has been contributing a major share to the economic development of a nation. In the year 2008-09, automobile sector has achieved a turnover of Rs. 2,18,966 crore, out of which the automobile vehicle industry has registered a turnover of Rs. 1,42,646 crore and automobile component industry with Rs. 76,320 crore. With regard to exports the automobile sector has exported Rs. 31,782 crore worth of equipment, out of which, the share of automobile vehicle industry is Rs. 16,782 crore and automobile component industry is Rs.15,000 crore. The automobile sector has provided direct and indirect employment for 10.5 million people.

Review of Literature

Burcu Dincergok and Kursat Yalciner (2011) have conducted a study on "Capital structure decisions of manufacturing firms in developing countries." They have analysed the firm specific factors and macro economic factors that affect capital structure decisions of manufacturing firms. A sample of 220 manufacturing firms belongs to four countries namely, **Turkey, Brazil, Argentina and Indonesia** for a period of 8 years from 2000-2007 have been taken for the study. Firm specific variables have been collected from Data stream database and the macro economic variables have been collected from international financial statistics data, Euro monitor data, global financial data, and KPMG tax data. Three types of leverage have been calculated, such as, total long term liabilities/total assets (L1), total liabilities/total assets (L2), total long term liabilities/(total assets book value of equity + market value of equity) (L3). The firm specific variables, such as, tangibility, profitability, growth opportunity, size, risk, non debt tax shield and the macro economic variables, namely, interest rate, stock market development, development in the banking sector, the bank claims on private sector over gross domestic product, the real GDP growth, the corporate tax rate, public domestic debt and the banking sector claims on government sector over GDP have been taken for the study. They have applied descriptive statistics and panel data analysis (fixed effects

model and random effects model). Hausman test has been used to determine the models. Fixed effect model has been used to the total book value debt ratios; random effect has been applied to long term market value debt ratios, except for Brazil. The results have revealed that the tangibility has a positive impact on long term debt; profitability has a negative impact on three debt ratios. The interest rates and the real GDP have a negative relationship with debt ratios; stock market development and the public sector debt have a positive impact with debt ratios.

Barak Turan Icke and Hunkar Ivgen (2011), in their article titled on "How firm specific factors affect capital structure: An Emerging market practice – Istanbul Stock Exchange" have examined the impact of firm specific factors on capital structure decisions. They have taken a sample of 212 firms from Istanbul stock exchange. The study has covered a period of 5 years from 2004-2009. Leverage ratio has been taken as a dependent variable and the explanatory variables, such as, agency cost and asset turnover, tax, non debt tax shield, growth, firm size, change in profits, tangibility of assets, profitability and liquidity have been taken as independent variables. Panel data analysis has been applied. Unit root test has been applied to see the stability of series of data. The result has shown that the series are stationary. Hausman test has been applied to select the appropriateness of panel model. The two way fixed effects panel data regression has been selected to identify the determinants. The result has shown that the firm size, liquidity, growth and profitability have affected the leverage ratios significantly; out of these, firm size and profitability have negatively correlated with leverage ratios. Growth has been positively correlated and liquidity has been negatively correlated with leverage. The result has supported the pecking order theory.

Theories of Capital Structure

The capital structure is one of the most important debatable issues in the field of finance. The Modigliani and Miller (1958) have made the first attempt to explain the relationship between capital structure and the firm value. The capital structure has been revisited by many theories, such as, pecking order theory, static trade off theory, agency theory and signaling theory.

Pecking Order Theory

The pecking order theory has been first framed by Donaldson in 1961. According to him, a firm has a well

structured order of preference for raising funds. Whenever a firm need, funds, it will rely as much as possible on internally generated funds. If the internally generated funds are not sufficient to meet the financial needs, the company has to move to raising of debt funds in the form of term loans and then to non- convertible bonds and debentures and then to convertible bonds instruments and quasi- equity instruments. After the exhaustion of all other resources, the final choice for the firm is to raise funds through issue of new equity shares. The theory presumes that:

- i) The cost of employing internally generated funds is the lowest because it has no issue cost.
- ii) Raising of debt fund is a cheaper source of finance as compared to issue of equity shares.
- iii) Raising of debt funds through term loans is cheaper than issuing bonds or debentures.
- iv) Issue of new equity capital involves high issue cost.
- v) The cost of servicing of debt capital is relatively less as compared to servicing of equity capital.

The pecking order theory proposes that:

- i) A firms' dividend policy decision depends upon its leverage position and investment decision.
- ii) Internally generated funds have been preferred than external financing.
- iii) If external financing is needed , debt is preferred than equity.
- iv) Issue of new equity for raising additional funds has been considered as the last choice.

Modified Pecking Order Theory

This theory was modified by Myers in 1984. According to Modified Pecking order theory, the order of preference for raising finance arises because of the existence of asymmetric information between the market and the firm. He has argued that because of the asymmetric information, the market may undervalue the project and the firm may prefer internal funds, followed by debt as compared to issue of new equity shares for financing the projects.

Static-trade off Theory

According to Static trade off model, the tax benefit – bankruptcy cost trade off models have predicted that

companies seek to maintain an optimal capital structure by balancing the benefits and the costs of debt (DeAngelo and Masulis, 1980). The benefits include the tax shield whereas the costs include expected financial distress costs. This theory has predicted that companies maintain an optimum capital structure where the marginal benefit of debt equals the marginal cost. The implication of the trade-off model is that companies have target leverage and they adjust their leverage towards the target over time.

Agency cost Theory

Agency cost theory has been first introduced by Jensen and Meckling (1976). They focused on the relationship between the shareholders (the principal) and the manager. In particular, the managers do not always act in the interest of the shareholders and consequently the goal is not always to maximize the value of the company. In fact, the managers can adopt an opportunistic behaviour and seek to benefit from the agency relationship. Such a conflict of interest will create agency costs and requires some remedy measures. They have proposed to increase the level of debt to concentrate a larger part of the capital structure between the hands of the manager and to incite the shareholders to increase the value of the company. According to agency theory, the financing choices are those which minimize the agency cost and increase the shareholders' wealth. The financial model resulting from this theory considers the debt as a device allowing the reduction of discretion and moral hazard of the managers.

Signaling Theory

The Signaling Theory has been originally developed by Leland and Pyle (1976) and Rose (1977). According to Leland and Pyle the value of a company is positively correlated with the managerial ownership and each change noticed on the level of the managerial ownership results in a modification in the financial policy followed by a new value of the company. He has argued that the higher is the managerial ownership in the capital of the company, the larger is the debt capacity. Such strong ownership is highly recognized by the bond holders and signals confidence in the future investments.

According to Rose (1977), the managers have been informed about the company's profitability than external investors. They know the true distribution of the company returns, but investors do not. He has argued that higher financial

leverage can be used by the managers to signal an optimistic future of the company since the debt is a contractual obligation to repay both principal and interest. He has stressed that the usage of more debt in the capital structure is a good signal of the managers' optimism about their companies.

Objectives of the Study

- To analyse the leverage position of Indian Transport Equipment Sector, and
- To identify and toanalyse the determinants of leverage of Indian Transport Equipment Sector.

Hypothesis

The following null hypotheses have been framed for the purpose of the study:

- H₀₁: The variables, namely, profitability, size, tangibility, NDTS, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on LTD ratio.
- H₀₂: The variables, namely, profitability, size, tangibility, NDTS, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on STD ratio.
- H₀₃: The independent variables, namely, profitability, size, tangibility, NDTS, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on TDTA ratio.

Research Methodology

Frame Work of the Study

The dependent variables taken to represent the leverage are Long term debt ratio, Short term debt ratio, and Total debt to asset ratio.

Dependent Variables	Formulae
Long term debt ratio (LTD)	Long term debt / Total assets
Short term debt ratio (STD)	Short term debt / Total assets
Total debt to total asset ratio (TDTA)	Total debt / Total assets

Determinants of Leverage

Leverage depends on many factors, both internal and external. The following variables have been considered to study the determination of the leverage

Independent Variables	Formulae
Profitability	PBIT net of P&E / Total assets
Size	Natural logarithm of total assets
Tangibility	Net fixed assets / Total assets
Non debt tax shield (NDTS)	Depreciation + Amortization / Total assets
Growth	Growth rate in total assets
Business Risk (BR)	Standard deviation of PBIT net of P&E
Liquidity	Current assets / Current liabilities and provision
Free cash flow to total assets (FCFTA)	PAT net of P&E + depreciation / Total assets
Cost of borrowing (COB)	Interest paid / Total Borrowing
Tax rate (TR)	$1 - \frac{\text{PAT net of P\&E}}{\text{PBT net of P\&E}}$

Sample and Sampling design

A sample of 35 firms, which have been listed at both BSE and NSE stock exchange by applying purposive sampling technique have been taken for the study. The data

has been collected from PROWESS 3.1 version maintained by Centre for Monitoring Indian Economy Pvt Ltd. The study has covered a period of 15 financial years from post-liberalisation era, namely, 1995 -1996 to 2009- 2010.

Tools for analysis

Summary statistics

Summary statistics, such as, mean, median, standard deviation, co-efficient of variation, skewness and kurtosis have been applied to study the characteristics of the selected ratios. The growth measure namely, Annual Growth Rate (AGR) has been computed to study the growth of the ratios.

Pooled OLS Regression

Pooled Ordinary Least Square is an ordinary regression equation type

$$Y_i = a + b_1X_{1i} + b_2X_{2i} + b_3X_{3i} \dots b_nX_{ni} + u_i$$

where X_1, X_2, \dots, X_n are independent variables

and Y_i the dependent variable

u_i , error term

with $i = 1 \dots n$ observations.

In the pooled regression approach, the effect of period (years) is ignored and regression analysis is carried out with normal estimation procedure.

Panel data regression

Panel data is a dataset in which the behaviors of individuals are observed cross time. These individuals could be states, companies, persons, countries, etc. It facilitates analysis of cross-sectional and time series data. So it is also known as longitudinal or cross sectional time-series data. Panel data regressions are considered to be the most useful tools when it is suspected that the outcome (dependent) variable depends on explanatory variables which are not observable directly but correlated with other observed variables. If these unobserved variables are constant over time, panel data estimators allow to consistently estimate the effect of observed explanatory variables. (Oscar Torres – Reyna. Panel data analysis: Fixed and Random effect (using stata 10.X).

The advantages of using panel data as compared to running the models using separate time series and cross section data are as follows:

- Considers large number of data points,
- It controls the individual heterogeneity and therefore the risk of obtaining biased results are minimized,

- Increases degrees of freedom and reduces collinearity,
- Improves efficiency of estimates, and
- Broadens the scope of inference.

Two basic models of panel data regression have been used in this study.

Model 1: Panel data regression with fixed effect.

Fixed-effect (FE) model may be used in analyzing the impact of variables that vary over time. Fixed Effect explores the relationship between predictor and outcome variables within an Individual. Each individual has its own unique characteristics that may or may not influence the predictor variables (for example business practices of a company may influence its stock price).

The equation for the fixed effects model is:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$$

where

- α_i ($i=1 \dots n$) is the unknown intercept for each individual (n individual -specific intercepts).
- Y_{it} is the dependent variable where i = individual and t = time.
- X_{it} represents one independent variable
- β_1 is the coefficient for that independent variable,
- u_{it} is the error term

Model 2: Panel Data Regression with Random Effects

The assumption behind Random effects (RE) model is that, unlike in the fixed effects model, the variations across individuals is assumed to be random and is uncorrelated with the predictor or independent variables included in the model; If the differences across individuals have some influence on the dependent variable then Random effects models may be used.

The equation for the Random effects model is:

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \varepsilon_{it}$$

where

- u_{it} – error variation between the individuals,
- ε_{it} - error variation within the individuals.

Random effects assume that the individual's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables.

This study has used all the three models (pooled OLS, FE and RE) and further, two tests have been carried out to decide the appropriateness of these three models. Initially, the Lagrange multiplier test has been applied to find the existence of panel effect in the values. The classical model (Pooled OLS) and the Random Effect model are compared and when there is no panel effect, the pooled OLS will be chosen for further analysis; otherwise, the Random Effect model will be chosen for the next step of application. As a second step, the Random Effect model is compared with Fixed Effect model using Hausman Specification test and the appropriate model is chosen for further analysis based on the significance of the chi-square value.

Results and Discussions

Leverage Position

The year wise analysis and summary statistics of leverage position have been presented in the table 1 for the study period from 1st April 1995 to 31st March 2010.

The table 1 reveals that the mean value of LTD to total asset ratio is the maximum (0.239) in the year 1998 and the minimum of 0.167 in the year 2004 revealing that the relative dependence on long term borrowing. The year wise values have shown an increasing trend during the period 1997, 1998, 2005, 2006, 2008 and 2009. A decreasing trend has been found during the years 1999-2004 and an alternate increase and decrease during the rest of the years.

The mean value of STD to total asset ratio is the maximum (0.409) in the year 2005 and the minimum of (0.341) in the year 1998, showing that the dependence on short term borrowing is high in the year 1998 and low in the year 2004. The year wise mean has increased during the years 1999-2005, 2007, 2010 and decreased during the period 1997-1998, 2006, 2008.

The **Machinery sector** has been highly dependent on borrowing to finance the total assets in the year 2008 (0.553). The mean value has been the minimum (0.489) in the year 2010. The year wise mean value has shown a fluctuating trend during the period 1996-2007 and a declining trend during the years 2008-2010.

The summary statistics shows that the sector has registered an increasing trend in the leverage measures during the year 2005. A mixed trend has been noticed during the rest of

the years. The sector has recorded a negative skewness for the variables, namely, LTD ratio, STD ratio, and positive skewness for TDTA ratio. Kurtosis has been negative for the variables, such as, LTD ratio, STD ratio and positive for TDTA ratio. The sector has shown a positive annual growth rate for LTD ratio and negative for STD ratio and TDTA ratio.

Determinants of Leverage

Long Term Debt Ratio

The following null hypothesis has been framed to find whether the selected variables have a significant influence on long term debt ratio:

H₀₁: "The variables, namely, profitability, size, tangibility, NDTs, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on LTD ratio."

It is clear from the table 2 that the regression coefficients have shown the same signs in all the three models. The R² values have exhibited a moderate correlation between the selected independent variables and the LTD ratio. The F test and the Wald chi-square test have disclosed a significant association between the selected independent variables and the LTD ratio in all the three models.

The **LM** result shows that the chi-square value (152.34) is significant at one per cent level. Hence, the RE model has been considered better than the pooled OLS model.

The **Hausman test** has indicated that the chi-square value (14.30) is not significant, thereby, the **RE** model has been chosen to analyse the determinants of leverage, ignoring the FE model.

The **RE model** has displayed that the ratios, namely, profitability, size, tangibility, NDTs and liquidity have a significant positive influence on LTD ratio. The rest of the significant variables, namely, FCFTA, COB and TR have a significant negative influence on LTD ratio. Hence, the null hypothesis (H₀₁) has been rejected, with reference to these variables.

The two variables, namely, growth and BR have not shown a significant influence on the LTD ratio. Hence, the null hypothesis (H₀₁) has been accepted for these two variables.

It is concluded that during the study period, the factors, namely, **profitability, size, tangibility, NDTs, liquidity, FCFTA, COB and TR** have influenced the leverage (LTD ratio) of the transport equipment sector.

Short Term Debt Ratio

The following null hypothesis has been framed to find whether the selected variables have a significant influence on short term debt ratio:

H_{02} : "The variables, namely, profitability, size, tangibility, NDTs, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on STD ratio."

It is observed from the table 3 that the regression co-efficient signs have been similar for all the independent variables in all the three models, except for the variable, size in the pooled OLS model. The R^2 values have shown a low correlation between the selected independent variables and the STD ratio. The F test and Wald - chi-square value have depicted a significant correlation between the selected independent variables and the STD ratio.

The **LM test** has revealed that the chi-square (353.96) is significant at one per cent level disclosing the existence of panel effect, thereby, the RE model has been considered for further application.

The **Hausman specification test** has depicted that the value of chi-square is (27.57) significant at one per cent level, which reveals that the **FEmodel** is more appropriate for further analysis of the determinants of leverage than the RE model.

The **FEmodel** has shown that the variables, namely, size, NDTs and COB have a significant positive influence on STD ratio and the variables, namely, tangibility and liquidity have a significant negative influence on STD ratio. Hence, the null hypothesis (H_{02}) has been rejected for these variables.

The rest of the variables, namely, profitability, growth, BR, FCFTA and TR have not had a significant influence on STD ratio. Hence, the hypothesis (H_{02}) has been accepted for these variables.

To conclude, the variables, namely, **Size, NDTs, COB, tangibility and liquidity** have influenced the leverage during the study period.

Total Debt to Total Asset Ratio

The following null hypothesis has been framed to find whether the selected variables have a significant influence on total debt to total asset ratio:

H_{03} : "The independent variables, namely, profitability, size, tangibility, NDTs, growth, BR, liquidity, FCFTA, COB and TR do not have a significant influence on TDTA ratio."

It is discernible from the table 4 that the signs of the regression co-efficient have been similar in FE and RE models and they differ in the pooled OLS model. The R^2 value has shown a moderate correlation in the pooled OLS model and a low correlation has been noticed in FE and RE models. The F-value and Wald-chi-square value have revealed a significant correlation between the selected independent variables and the TDTA ratio.

The **LM test** has shown that the chi-square value 279.11 is significant at one per cent level revealing the existence of panel effect. Hence, RE model is preferred to pooled OLS model.

The **Hausman test** has revealed that the chi-square value 33.89 is significant at one per cent level implying that the FE model is more effective than the RE model. Hence, among the three models applied, **FEmodel** serves as an appropriate model for further analysis.

The **FEmodel** has mirrored that the variables, namely, profitability, size and NDTs have a significant positive influence on TDTA ratio. The rest of the significant variables, namely, liquidity and FCFTA have a significant negative influence on TDTA. Hence, the null hypothesis has been rejected in respect of these variables.

The other variables, namely, tangibility, growth, BR, COB and TR have not revealed a significant influence on TDTA ratio. Hence, the null hypothesis (H_{03}) has been accepted in respect of these variables.

In a nut shell, it is found that for the transport sector, the leverage has been influenced by the factors namely, **profitability, size, NDTs, liquidity and FCFTA** during the period of study.

Conclusion

The study has concluded that the sector has employed more of debt funds in the year 2005. A mixed trend has been noticed during the rest of the years. Profitability, size and NDTs are the key determinants of leverage of Indian Transport sector. The findings of the study have endorsed the prescriptions of the trade off theory and signaling theory.

References

- Babu, Suresh and P. K. Jain (1998). "Empirical testing of pecking order hypothesis with reference to capital structure practices in India." *Journal of Financial Management and Analysis*, vol.11, No.2.
- Babu, Suresh and P.K. Jain (2000). "The influence of nature of business on corporate debt ratios – empirical evidence from Indian corporate sector." *Finance India*, Vol.14, No.4, pp. 1165-1173.
- Chatrath, Arjun, Ravindra Kamath et al. (1997). "Cost of capital, capital structure and dividend policy." *Finance India*, Vol.9, No.1, pp. 1- 16.
- Dhankar, Raj S. and Ajit S. Boora (1996). "Cost of Capital, optimal capital structure and Value of firm: An Empirical study of Indian companies." *Vikalpa*, Vol.21, No.3, pp 29-36.
- Dincergok, Burcu and Kursat Yalciner (2011). "Capital structure decisions of manufacturing firms in developing countries." *Middle Eastern Finance and Economics*, Issue 12, pp 86-100.
- Ellili, Nejla Ould Daoud and Sherine Farouk (2011). "Examining the capital structure determinants: empirical analysis of companies traded on Abu Dhabi Stock Exchange," *International Research Journal of Finance & Economics*; 2011, Issue 67, p82.
- Ghosh, Santanu Kumar and Paritosh Chandra Sinha (2009). "Is there optimality in firms' capital structure? An empirical study." *Finance India*, Vol.23, No.3, pp. 867-888.
- Icke, Basak Turan and Hunkar Ivgen (2011). "How firm specific factors affect capital structure: An Emerging market practice – Istanbul stock exchange." *Middle Eastern Finance and Economics*, Issue 13, pp. 90-101.
- Ramaswamy, Vinita and Ramon Fernandez (1998). "The leverage multiplier, equity levels and managerial policy choices," *Proceedings of the Academy of Accounting and Financial Studies*, Vol.3, No.2, pp. 174-187.
- Torres – Reyna, Oscar (2007). "Panel data analysis: Fixed & Random effects (using stata 10.X)." <http://www.princeton.edu/~otorres/Panel101.pdf>.
- Yue, Ho-uin (2011). "Determinants of corporate capital structure under different debt maturities," *International Research Journal of Finance and Economics*, Issue 66, pp 99-106.

List of Abbreviations

CMIE	Centre for Monitoring Indian Economy
BSE	Bombay Stock Exchange
NSE	National Stock Exchange
LM	Lagrange Multiplier
FE	Fixed Effect
RE	Random Effect
OLS	Ordinary Least square
AGR	Annual Growth Rate
LTD	Long Term Debt
STD	Short Term Debt
TDTA	Total debt to Total Asset ratio
NDTS	Non-Debt Tax Shield
BR	Business Risk
FCFTA	Free Cash Flow to Total Assets
COB	Cost of Borrowing
TR	Tax Rate

Table 1
Leverage measures

Years	Long term debt ratio (LTD)	Short term debt ratio (STD)	Total debt to total asset ratio (TDTA)
1996	.226	.382	.607
1997	.234	.363	.597
1998	.239	.341	.580
1999	.235	.356	.591
2000	.225	.362	.586
2001	.222	.369	.591
2002	.205	.386	.591
2003	.190	.390	.580
2004	.167	.403	.570
2005	.183	.409	.587
2006	.194	.375	.564
2007	.189	.395	.579
2008	.198	.390	.582
2009	.228	.362	.577
2010	.222	.372	.582
Mean	0.210	0.377	0.584
Median	0.222	0.375	0.582
S.D	0.022	0.019	0.011
C.V	10.055	5.011	1.818
Skewness	-0.456	-0.058	0.196
Kurtosis	-1.030	-0.515	0.740
AGR	0.116	-0.087	-0.281

Source : Computed

Table 2
Long Term Debt Ratio
Pooled OLS and Panel Data Regression

	Pooled OLS			Fixed Effect			Random Effect		
	B	t	Sig.	B	t-value	Sig.	B	z-value	Sig.
(Constant)	0.0030710	.100	NS	.0283835	0.59	NS	.0072307	0.19	NS
Profitability	1.0260000	5.651	**	1.067506	5.67	**	1.024975	5.73	**
Size	0.0085940	2.121	*	.0105691	1.76	NS	.0097047	1.96	*
Tangibility	0.3390000	9.922	**	.2804421	5.51	**	.3273672	7.64	**
NDTS	1.4810000	4.921	**	.702668	2.04	*	1.000186	3.20	**
Growth	0.0000144	1.587	NS	.0000116	1.16	NS	.0000111	1.19	NS
BR	-0.0001376	-1.793	NS	-.0000603	-0.84	NS	-.0000743	-1.05	NS
Liquidity	0.0074410	1.803	NS	.0143343	2.61	**	.0108014	2.22	*
FCFTA	-1.6290000	-7.730	**	-1.637396	-7.54	**	-1.588982	-7.65	**
COB	-0.0836500	-5.769	**	-.0532919	-3.99	**	-.0604207	-4.58	**
TR	-0.0319400	-3.002	**	-.0270726	-2.80	**	-.0292195	-3.06	**
R ²	.461			0.3114			0.3047		
F-statistic	33.622		**	16.40		**			
Wald (chi square)							227.50		**
Hausman (chi square)				14.30		NS			
LM (chi square)							152.34		**

Source : Computed * significant at 5 per cent level ** significant at 1 per cent level

Table 3
Short Term Debt Ratio
Pooled OLS and Panel Data Regression

	Pooled OLS			Fixed Effect			Random Effect		
	B	t	Sig.	B	t-value	Sig.	B	Z-value	Sig.
(Constant)	0.5230000	14.511	**	.4258265	8.74	**	.4806261	11.03	**
Profitability	0.6740000	3.165	**	.3639559	1.90	NS	.3516893	1.86	NS
Size	-0.0016490	-.347	NS	.017031	2.79	**	.0080142	1.47	NS
Tangibility	-0.3130000	-7.817	**	-.3570714	-6.89	**	-.3467934	-7.37	**
NDTS	1.2770000	3.614	**	1.507374	4.31	**	1.23152	3.68	**
Growth	-0.0000197	-1.850	NS	-0.00000276	-0.03	NS	-0.000004720	-0.48	NS
BR	0.0002036	2.261	*	.0000203	0.28	NS	.0000457	0.62	NS
Liquidity	-0.0245800	-5.075	**	-.0374625	-6.70	**	-.0326796	-6.19	**
FCFTA	-0.9840000	-3.977	**	-.3384302	-1.53	NS	-.3929197	-1.79	NS
COB	0.0487900	2.867	**	.0304193	2.24	*	.0350401	2.54	*
TR	0.0319300	2.557	*	.0101663	1.03	NS	.0153969	1.54	NS
R²	.222			0.2488			0.2392		
F-statistic	11.258		**	12.01		**			
Wald (chi square)							117.49		**
Hausman (chi square)				27.57		**			
LM (chi square)							353.96		**

Source : Computed * significant at 5 per cent level ** significant at 1 per cent level

Table 4
Total Debt to Total Asset Ratio
Pooled OLS and Panel Data Regression

	Pooled OLS			Fixed Effect			Random Effect		
	B	t	Sig.	B	t-value	Sig.	B	Z-value	Sig.
(Constant)	0.5260000	13.974	**	.45421	8.79	**	.496556	10.94	**
Profitability	1.7000000	7.639	**	1.431462	7.04	**	1.389298	6.89	**
Size	0.0069450	1.398	NS	.0276	4.26	**	.0167605	2.92	**
Tangibility	0.0254800	.609	NS	-.0766292	-1.39	NS	-.0231612	-0.47	NS
NDTS	2.7580000	7.474	**	2.210042	5.95	**	2.147953	6.05	**
Growth	-0.00000530	-.476	NS	.0000113	1.05	NS	0.00000576	0.55	NS
BR	0.0000661	.702	NS	-.00004	-0.52	NS	-.0000198	-0.25	NS
Liquidity	-0.0171400	-3.388	**	-.0231281	-3.90	**	-.0205739	-3.69	**
FCFTA	-2.6130000	-10.113	**	-1.975826	-8.43	**	-2.005381	-8.58	**
COB	-0.0348700	-1.961	*	-.0228725	-1.59	NS	-.0230809	-1.56	NS
TR	-0.0000101	-.001	NS	-.0169063	-1.62	NS	-.0126535	-1.18	NS
R²	.343			0.2194			0.2030		
F-statistic	20.514		**	10.20		**			
Wald (chi square)							120.01		**
Hausman (chi square)				33.89		**			
LM (chi square)							279.11		**

Source : Computed * significant at 5 per cent level ** significant at 1 per cent level

Modelling Effects of Foreign Institutional Investment in BSE

G.S. David Sam Jayakumar and A.Sulthan

A b s t r a c t

Foreign institutional investors have gained a significant role in Indian capital markets. Availability of foreign capital depends on many firm specific factors other than economic development of the country. In this context this paper examines the dynamic interaction between FII flows and stock market returns in Indian stock market. The data in this study consists of the monthly log return of major industries in BSE from January 2000 to July 2014. Stock return volatility is examined using the GARCH model with changes of variance during the period of 2000 - 2014. The analysis is conducted based on two sub-sample periods namely: period-1 (January 2000 to May 2006), period-2 (June 2006- July 2014). Augmented Dickey Fuller test is used to find the presence of random walk in returns of industries.

Key Words: *Augmented Dickey-Fuller, FII, GARCH, Random walk, Volatility*



Dr. G.S. David Sam Jayakumar
Assistant Professor
Jamal Institute of Management
Tiruchirappalli – 620 020, India
e-mail:samjaya77@gmail.com



A.Sulthan
Research scholar
Jamal Institute of Management
Tiruchirappalli – 620 020, India
e-mail: sulthan90@gmail.com

Volatility is not the same as risk. When it is interpreted as uncertainty, it becomes a key input to many investment decisions and portfolio creations. Investors and portfolio managers have certain levels of risk which they can bear. A good forecast of the volatility of asset prices over the investment holding period is a good starting point for assessing investment risk. After the incorporation of Liberalization, Privatization and Globalization in India many foreign individual investors as well as Institutional Investors are rushing in to India. In the same way after 2000 the new economic policy was implemented in our country and the result of these invited mini institutional investors from the western world in to our country. After years passed away, in 2006 there was a sudden withdrawal by the foreign direct investors from our country. Due to this major Indian industries such as Auto, capital goods, consumer durables, FMCG, Healthcare, metal, oil & gas, IT, Public sector undertaking, BSE sensx were highly volatile in their performance as well as in their results. This research study made an attempt to study the volatility of top Indian Industries tested in BSE before and after 2006.

This FDI impacts motivates the research to undergo a thorough scientific investigation of the volatility of top industry returns in BSE. As per the information provided in BSE India.com during the fortnight from May 16th to May 31st 2006, the withdrawals by FIIs were to the extent of US\$2.061 billion. This explains the fact that sales of FIIs had a major impact on the market and this impact led to the crash. Worthington, Andrew C. Higgs, Helen (2004) tests for random walks and weak-form market efficiency in European equity markets. Daily returns for sixteen developed markets (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom) and four emerging markets (Czech Republic, Hungary, Poland and Russia) are examined for random walks using a Augmented Dickey-Fuller (ADF). Ali F. Darrat and Maosen Zhong (2000) investigate, with new daily data, whether prices in the two Chinese stock exchanges (Shanghai and Shenzhen) follow a random-walk process as required by market efficiency. Siong-Hook Lawpa and Wan Azman Saini Wan Ngah (2008) examined the impact of stock market liberalization on stock return volatility in the Bursa Malaysia (formerly known as the Kuala Lumpur Stock Exchange), using the EGARCH model with sudden changes of variance during the period of 1985 - 2006. P. Krishna Prasanna(2008) explored Foreign institutional investors have gained a significant role in Indian capital markets. Availability of foreign capital depends on many firm specific factors other than economic development of the country. Dima Alberga, Haim Shalita and Rami Yosef (2008) performed a comprehensive empirical analysis of the mean return and conditional variance of Tel Aviv Stock Exchange (TASE) indices using various GARCH models. The prediction performance of these conditional changing variance models is compared to newer asymmetric GJR and APARCH models. Kaminsky and Schmukler (2003) constructed a new comprehensive chronology of financial liberalization in 28 mature and emerging economies, as well as an algorithm to identify booms and bursts in stock markets prices. Bologna and Cavallo (2002) investigated the stock market volatility in the post derivative period for the Italian stock exchange using Generalised Autoregressive Conditional Heteroscedasticity (GARCH) class of models. Li (2002) found that stock market volatility was significantly reduced three months after opening up to foreign investors. Levine and Zervos (1998) and Nilsson (2002) have found that stock market volatility has increased after financial liberalization.

He investigated the impact of financial liberalization on stock market returns in four largest Nordic stock markets, namely Sweden, Denmark, Finland and Norway. Chaudhuri and Klaassen (2001) found that in June 2000, the stock market of East Asian emerging markets namely South Korea, Malaysia, Indonesia and Thailand. Huang and Yang (2001) carried out a number of investigations into the impact of financial liberalization on stock price volatility in 10 emerging markets using the generalized error distribution (GED) with the GARCH models during 1988 to 1998. Spyrou and Kassimatis (1999) examined the impact of financial liberalization on stock market volatility in a sample of emerging economies. They employed a methodology namely the generalized autoregressive conditional heteroscedasticity GARCH model. Bekaert and Harvey (1997) used liberalization dates to examine the behaviour of volatility in emerging countries using the (GARCH) model. Grabel's (1995) seminal work on assessing the impact of financial market liberalization on stock market volatility has received great attention by the subsequent researchers. Jayakumar and Sulthan (2013), carried out a research in finding the distribution of stock returns with reference to G7 countries. In this papers authors made an effort to find the impact of foreign investment in the returns of the Indian stock market.

Methodology and Techniques of Data analysis

Objective of the study

- 1) To know the profile of BSE and top Indian industries.
- 2) To study the theory of volatility and its models.
- 3) To analyse volatility of top Industry returns under BSE. and
- 4) To give suitable suggestion for Investors.

Hypothesis

1. The returns of Indian Industries in BSE do not follow a normal distribution.
2. The returns of Indian Industries in BSE do not follow a random walk pattern.
3. The current industry returns is uncorrelated with the previous years.
4. The effect of the random shocks happened in past do not affect the current year industry returns.

Industry selection

The monthly data of following industries Auto, Capital goods, Consumer durables, FMCG, Health Care, IT, Metal, Oil and gas and Public sector were selected for the study and Sensex was also considered to know the volatility of BSE as overall.

Period of data sample

The study was conducted for monthly log return of major industries in BSE from January 2000 to July 2014 and it is segmented in to two periods were Period-1 includes log return of industries from January 2000 to May 2006 and Period-2 includes log return of industries from June 2006 to July 2014

Data analysis

For the purpose of scrutinizing volatility in the returns of top Indian Industries, the researcher conducted computer data analysis with the help of Gretl 1.9.7 (GNU regression, Econometrics and Time-series library). The analysis was conducted at different stages by utilizing selected time series econometric technique. In stage-1 the test of normality was checked for the return of Industries by using Doornik-Hansen test, Shapiro-Wilk test, Lilliefors test, Jarque-Bera test. In the next stage descriptive statistics of the industry returns was promoted. In stage-3 and stage-4 auto-correlation and ADF test were utilized to check the period wise relationship of the returns and to test the random walk hypothesis. Finally, GARCH modeling was adopted to analyze the random shocks and past year effects on the present year industry returns.

Augmented Dickey-Fuller test

The testing procedure for the ADF test is the same as for the Dickey-Fuller test, but it is applied to the model

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \dots + \varepsilon_t$$

where α is a constant, β the coefficient on a time trend and p the lag order of the autoregressive process. Imposing the constraints $\alpha=0$ and $\beta=0$ corresponds to modelling a random walk and using the constraint $\beta=0$ corresponds to modelling a random walk with a drift. Consequently, there are three main versions of the test, analogous to the ones discussed on the Wikipedia page for the Dickey-Fuller test. it discusses uncertainty about including the intercept and deterministic time trend terms in the test equation.

By including lags of the order p the ADF formulation allows for higher-order autoregressive processes. This means that the lag length p has to be determined when applying the test. One possible approach is to test down from high orders and examine the t-values on coefficients. An alternative approach is to examine information criteria such as the Akaike information criterion, Bayesian information criterion or the Hannan-Quinn information criterion. The unit root test is then carried out under the null hypothesis $\gamma=0$ against the alternative hypothesis of $\gamma<0$ once a value for the test statistic is computed it can be compared to the relevant critical value for the Dickey-Fuller Test. If the test statistic is less (this test is non symmetrical so we do not consider an absolute value) than (a larger negative) the critical value, then the null hypothesis of $\gamma=0$ is rejected and no unit root is present.

GARCH

If an autoregressive moving average model (ARMA model) is assumed for the error variance, the model is a generalized autoregressive conditional heteroscedasticity (GARCH, Bollerslev(1986)) model. In that case, the GARCH (p, q) model (where p is the order of the GARCH terms σ^2 and q is the order of the ARCH terms ε^2) is given by

$$\sigma_t^2 = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \dots + \alpha_q \varepsilon_{t-q}^2 + \beta_1 \sigma_{t-1}^2 + \dots + \beta_p \sigma_{t-p}^2$$

$$\beta_p \sigma_{t-p}^2 = \alpha_0 + \sum_{i=1}^q \alpha_i \varepsilon_{t-i}^2 + \sum_{i=1}^p \beta_i \sigma_{t-i}^2$$

Generally, when testing for heteroscedasticity in econometric models, the best test is the White test. However, when dealing with time series data, this means to test for ARCH errors (as described above) and GARCH errors (below). Prior to GARCH there was EWMA which has now been superseded by GARCH, although some people utilise both.

GARCH (p, q) model specification

The lag length p of a GARCH (p, q) process is established in three steps:

1. Estimate the best fitting AR(q) model

$$y_t = a_0 + a_1 y_{t-1} + \dots + a_q y_{t-q} + \varepsilon_t = a_0 + \sum_{i=1}^q a_i y_{t-i} + \varepsilon_t$$

2. Compute and plot the autocorrelations of ε^2 by

$$\rho = \frac{\sum_{t=2}^T (\hat{\sigma}_t^2 - \hat{\sigma}_t^2)(\hat{\sigma}_{t-1}^2 - \hat{\sigma}_{t-1}^2)}{\sum_{t=1}^T (\hat{\sigma}_t^2 - \hat{\sigma}_t^2)}$$

3. The asymptotic, that is for large samples, standard deviation of $p(i)$ is $1/\sqrt{7}$. Individual values that are larger than this indicate GARCH errors. To estimate the total number of lags, use the Ljung-Box test until the value of these are less than, say, 10% significant. The Ljung-Box Q-statistic follows χ^2 distribution with n degrees of freedom if the squared residuals ε_t^2 are uncorrelated. It is recommended to consider up to T/4 values of n . The null hypothesis states that there are no ARCH or GARCH errors. Rejecting the null thus means that there exist such errors in the conditional variance.

Data analysis and Results

Table-1-Test of Normality for Industry returns

Industry	Period-1				Period-2				Pooled			
	DH test*	SW test*	L test*	JB test*	DH test*	SW test*	L test*	JB test*	DH test*	SW test*	L test*	JB test*
Auto	1.933	0.984 ^a	0.076	0.426	11.914 ^a	0.964	0.110	12.112 ^a	6.854	0.986 ^a	0.088	8.816 ^b
Capital goods	10.842 ^a	0.948	0.120 ^b	8.013 ^b	26.779 ^a	0.937 ^a	0.130 ^a	27.882 ^a	22.145	0.963 ^a	0.091 ^a	33.605 ^b
Consumer durable	2.880	0.979	0.096	2.627	26.078 ^a	0.897 ^a	0.163 ^a	29.156 ^a	14.898 ^a	0.961	0.097 ^a	19.323 ^b
FMCG	0.745	0.983	0.066	0.938	15.485 ^a	0.951 ^a	0.084	18.193 ^a	3.687	0.990	0.046	3.882
Health care	3.291	0.977	0.080	3.199	17.578 ^a	0.906 ^a	0.108 ^b	59.168 ^a	16.117 ^a	0.957 ^a	0.093 ^a	33.691 ^a
IT	9.505 ^a	0.951 ^a	0.126 ^a	19.647 ^a	3.144 ^a	0.978 ^a	0.102 ^b	3.232	22.066 ^a	0.943 ^a	0.091	77.174 ^b
Metal	2.885	0.976	0.092	2.219	17.436 ^b	0.956 ^a	0.108 ^b	20.542 ^b	16.190 ^b	0.976 ^b	0.057	24.775 ^b
Oil and gas	11.929 ^a	0.964 ^b	0.079	8.965 ^b	14.131 ^a	0.955 ^b	0.069	26.367 ^a	21.896 ^b	0.964 ^a	0.061	36.155 ^b
Public sector	13.016 ^a	0.958 ^b	0.096	12.571 ^a	26.370	0.934	0.114	27.633	28.049	0.957 ^a	0.092	36.854
Sensex	5.853	0.968	0.109 ^b	3.580	9.093	0.972	0.083	9.212	7.202 ^b	0.979 ^b	0.070	10.839 ^a

Period-1=January 2000 to May 2006

Period-2=June 2006 to July 2014

Pooled=January 2000 to July 2014

DH test*= Doornik-Hansen test

SW test*= Shapiro-Wilk test

L test*=Lilliefors test

^a p-value <0.01 ^b p-value <0.05

JB test*= Jarque-Bera test

Table-2-Descriptive statistics of Industry returns

Indices	Period-1(n=77)					Period-2(n=97)					Pooled(n=174)				
	Minimum	Mean	Maximum	S.D	C.V	Minimum	Mean	Maximum	S.D	C.V	Minimum	Mean	Maximum	S.D	C.V
Auto	-0.2321	0.0168	0.1876	0.0900	5.3568	-0.3136	0.0110	0.2761	0.0928	8.4444	-0.3136	0.0139	0.2761	0.0908	6.5411
Capital goods	-0.2374	0.0257	0.1890	0.0972	3.7756	-0.4107	0.0128	0.4104	0.1179	19.6952	-0.4107	0.0160	0.4104	0.1073	6.7077
Consumer durable	-0.3106	0.0093	0.2186	0.1138	12.2443	-0.3457	0.0060	0.4506	0.1193	9.3098	-0.3457	0.0101	0.4506	0.1161	11.4564
FMCG	-0.2018	0.0065	0.1506	0.0721	11.1404	-0.1828	0.0112	0.1907	0.0570	5.0704	-0.2018	0.0089	0.1907	0.0651	7.3219
Health care	-0.2195	0.0067	0.1505	0.0741	11.0438	-0.2788	0.0102	0.1448	0.0714	6.9816	-0.2788	0.0078	0.1505	0.0727	9.3550
IT	-0.5397	-0.0033	0.3464	0.1484	44.4599	-0.2481	0.0077	0.1867	0.0847	11.0346	-0.5397	0.0020	0.3464	0.1218	59.7491
Metal	-0.2162	0.0217	0.2676	0.1143	5.2738	-0.5160	0.0052	0.4573	0.1432	27.3253	-0.5160	0.0136	0.4573	0.1281	9.3906
Oil and gas	-0.3059	0.0170	0.2656	0.0930	5.4590	-0.3777	0.0072	0.2478	0.0970	13.4289	-0.3777	0.0126	0.2656	0.0944	7.4967
Public sector	-0.3347	0.0171	0.2699	0.0978	5.7295	-0.3135	0.0064	0.3627	0.0982	15.3860	-0.3347	0.0115	0.3627	0.0976	8.4495
Sensex	-0.1724	0.0091	0.1462	0.0720	7.9108	-0.2730	0.0073	0.2489	0.0833	11.3883	-0.2730	0.0083	0.2489	0.0770	9.2342

Period-1=January 2000 to May 2006

Period-2=June 2006 to July 2014

Pooled=January 2000 to July 2014

Table-3-Determination of Maximum lag length for industry returns

Indices	Period-1*		Period-2*		Pooled*	
	Minimum AIC	Lags	Minimum AIC	Lags	Minimum AIC	Lags
Auto	-2.1711	2	-1.6947	1	-2.0299	2
Capital goods	-1.9985	1	-1.3086	1	-1.6593	1
Consumer durable	-1.6036	1	-1.4545	1	-1.4808	1
FMCG	-2.3032	1	-2.8102	2	-2.5958	1
Health care	-2.3441	1	-2.2300	1	-2.4029	1
IT	-1.7485	1	-1.9109	3	-1.9364	1
Metal	-1.3574	1	-0.9120	1	-1.2067	1
Oil and gas	-1.8530	5	-1.7254	1	-1.8416	1
Public sector	-1.7355	1	-1.7441	1	-1.7867	1
Sensex	-2.4500	1	-2.0078	1	-2.2691	1

Period-1=January 2000 to May 2006 Period-2=June 2006 to July 2014 Pooled=January 2000 to July 2014 AIC- Akaike information criteria

Table-4-Auto-correlation function for industry returns

Indices	Period-1*				Period-2*				Pooled*			
	ACF	Lag	Q-stat	p-value	ACF	Lag	Q-stat	p-value	ACF	Lag	Q-stat	p-value
Auto	0.2514	2	6.7587	<0.05	0.2074	1	3.0560	>0.05	0.1700	2	9.2474	<0.05
Capital goods	0.0579	1	0.2650	>0.05	0.2580	1	4.7299	<0.05	0.1887	1	5.2693	<0.05
Consumer durable	0.1208	1	1.1538	>0.05	0.1892	1	2.5427	>0.05	0.1632	1	3.9439	<0.05
FMCG	-0.0008	1	0.0001	>0.05	-0.1522	2	2.3537	>0.05	-0.0441	1	0.2881	>0.05
Health care	0.1356	1	1.4530	>0.05	0.0158	1	0.0178	>0.05	0.0949	1	1.3322	>0.05
IT	0.0113	1	0.0100	>0.05	0.2698	3	9.4135	<0.05	0.0313	1	0.1450	>0.05
Metal	0.1003	1	0.7946	>0.05	0.2101	1	3.1359	>0.05	0.1739	1	4.4769	<0.05
Oil and gas	-0.1934	5	7.7866	>0.05	0.0799	1	0.4534	>0.05	0.0858	1	1.0884	>0.05
Public sector	0.1359	1	1.4589	>0.05	-0.0011	1	0.0001	>0.05	0.0828	1	1.0151	>0.05
Sensex	0.0464	1	0.1704	>0.05	0.1427	1	1.4473	>0.05	0.0970	1	1.3930	>0.05

Period-1=January 2000 to May 2006

Period-2=June 2006 to July 2014

Pooled=January 2000 to July 2014

Table-5-Augmented Dickey-Fuller test

Indices	Period-1*		Period-2*		Pooled*	
	ADF Test statistic	p-value	ADF Test statistic	p-value	ADF Test statistic	p-value
Auto	-4.563	<0.01	-6.501	>0.01	-6.636	>0.01
Capital goods	-8.595	>0.01	-6.204	>0.01	-9.938	>0.01
Consumer durable	-8.151	>0.01	-6.567	>0.01	-10.13	>0.01
FMCG	-8.756	>0.01	-8.923	>0.01	-12.71	>0.01
Health care	-7.522	>0.01	-7.875	>0.01	-10.9322	>0.01
IT	-7.582	>0.01	-2.914	>0.01	-12.092	>0.01
Metal	-7.545	>0.01	-6.502	>0.01	-9.987	>0.01
Oil and gas	-4.102	>0.01	-7.552	>0.01	-11.005	>0.01
Public sector	-7.281	>0.01	-8.087	>0.01	-10.9788	>0.01
Sensex	-8.656	>0.01	-6.961	>0.01	-10.8089	>0.01

Period-1=January 2000 to May 2006 **Period-2**=June 2006 to July 2014 **Pooled**=January 2000 to July 2014 **ADF**=Augmented Dickey-Fuller test

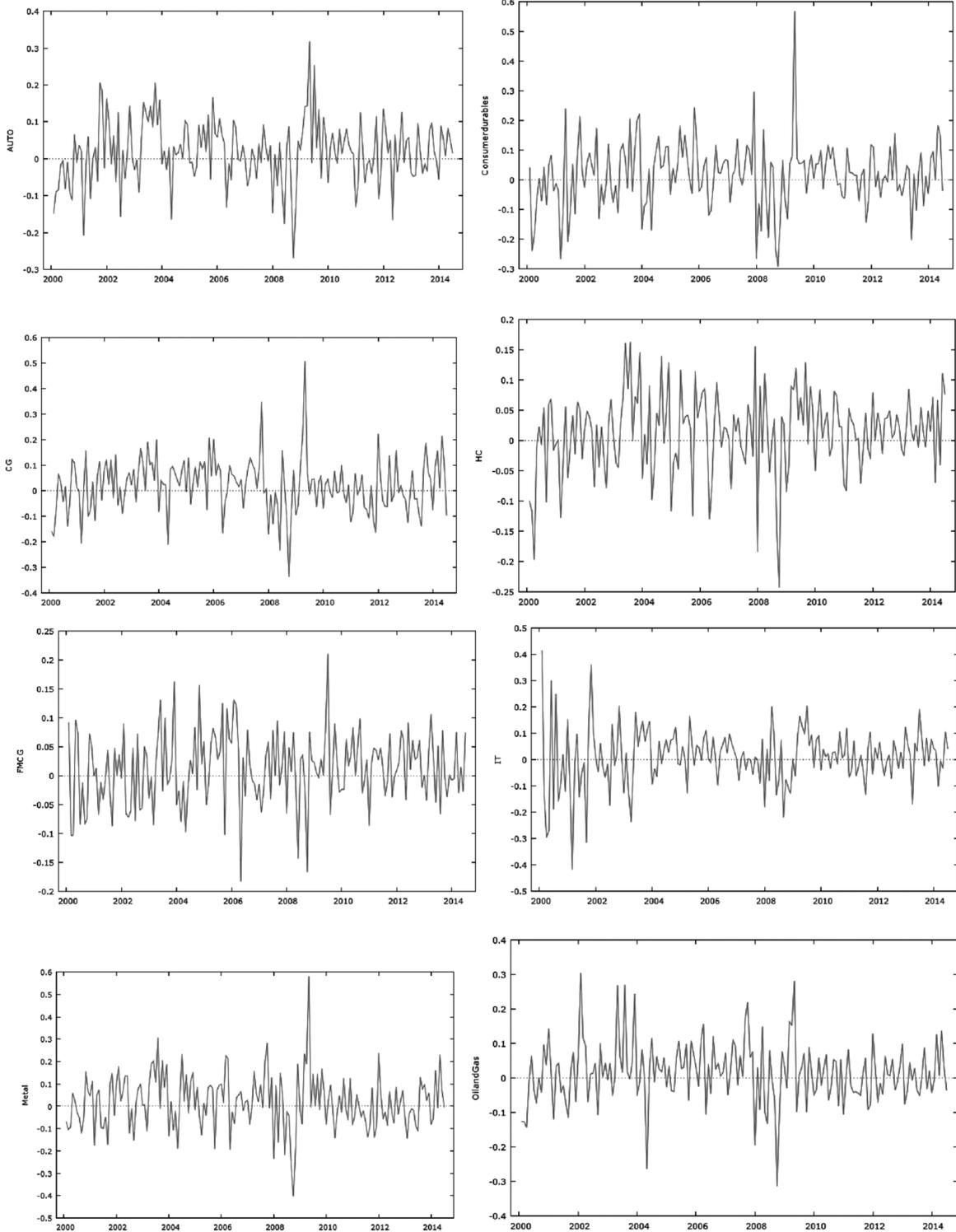
Table-6 - Generalized Auto-Regressive Conditional Heteroscedasticity model-(GARCH) for Industrial returns

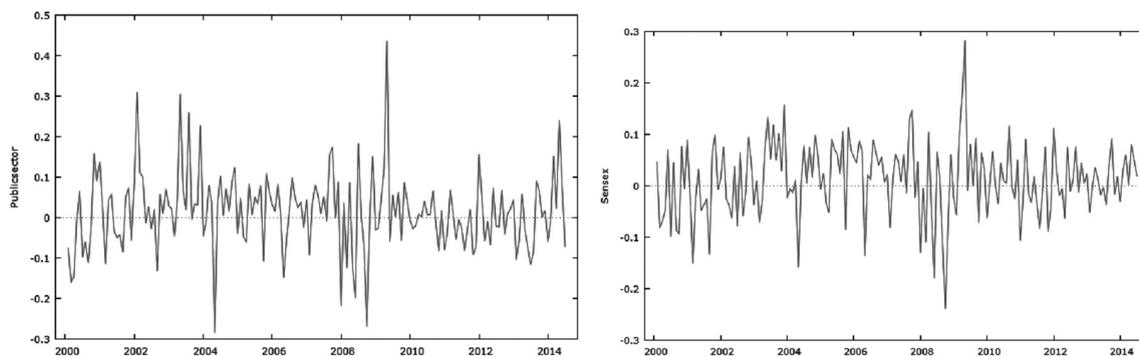
Industry	j	Period	Constant	$u_{j,t}^2$	$u_{j,t-1}^2$	$u_{j,t-2}^2$	$u_{j,t-3}^2$	$V_{j,t-1}$	$V_{j,t-2}$	$V_{j,t-3}$	
Auto	1	1	0.0198 ^b	0.0019 ^b	-0.1091	0.0997	-	1.6649 ^a	-0.9257 ^a	-	
		2	0.0068	0.0012	0.1856	-	-	0.6868 ^a	-	-	
		Pooled	0.0199 ^a	0.0004 ^a	-0.0749 ^a	0.111 ^a	-	-	1.904 ^a	-1.0068 ^a	-
Capital Goods	2	1	0.0222 ^b	0.0000	-0.0455	-	-	1.0591 ^a	-	-	
		2	0.0149	0.0070	0.1605	-	-	0.8088	-	-	
		Pooled	0.0191 ^b	0.0013	0.0871	-	-	-	0.7916 ^a	-	-
Consumer durables	3	1	0.0086	0.0000	-0.0251	-	-	1.0287 ^a	-	-	
		2	0.026 ^b	0.0011	0.2482 ^b	-	-	0.7054 ^a	-	-	
		Pooled	0.0195 ^b	0.0014	0.124 ^b	-	-	-	0.7656 ^a	-	-
FMCG	4	1	0.0036	0.0005	0.0755	-	-	0.8282 ^a	-	-	
		2	0.0177 ^a	0.0000	-0.03	-0.167 ^a	-	-	0.2892	0.8864 ^a	-
		Pooled	0.0059	0.0000	-0.0562	-	-	-	1.0689 ^a	-	-
Healthcare	5	1	0.0067	0.0008	0.0263	-	-	0.8121 ^b	-	-	
		2	0.0077	0.0004	0.1028	-	-	-	0.8629 ^a	-	-
		Pooled	0.0138 ^b	0.0046 ^a	0.2815 ^b	-	-	-	-0.1759 ^b	-	-

Industry	j	Period	Constant	u_{jt}^2	u_{jt}^2	u_{jt}^2	u_{jt}^2	u_{jt}^2	u_{jt}^2	u_{jt}^2	u_{jt}^2	u_{jt}^2	u_{jt}^2
IT	6	1	0.0146	0.0001	0.0734	-	-	0.9000 ^a	-	-	-	-	-
		2	0.0249 ^b	0.0006	-0.1532 ^a	0.3549	0.1166	0.9519	-0.2601	0.0559	-	-	-
		Pooled	0.0132	0.0003	0.1414 ^b	-	-	0.8218 ^a	-	-	-	-	-
Metal	7	1	0.0354 ^a	0.0118 ^a	-0.2824 ^a	-	-	0.3558 ^a	-	-	-	-	-
		2	0.0069	0.0015	0.3181 ^b	-	-	0.6515 ^a	-	-	-	-	-
		Pooled	0.0098	0.0019	0.176 ^b	-	-	0.7134 ^a	-	-	-	-	-
Oil & gas	8	1	0.0125	0.0001	-0.1449 ^a	-	-	1.1653 ^a	-	-	-	-	-
		2	0.0057	0.0006	0.1747	-	-	0.7818 ^a	-	-	-	-	-
		Pooled	0.0125	0.0011	0.0231	-	-	0.8411 ^a	-	-	-	-	-
Public sector	9	1	0.008	0.0018	-0.1525	-	-	0.9141 ^a	-	-	-	-	-
		2	0.002	0.0005	0.2925	-	-	0.7032 ^a	-	-	-	-	-
		Pooled	0.0108	0.0011	0.0389	-	-	0.8422 ^a	-	-	-	-	-
Sensex	10	1	0.0016	0.0085 ^a	-0.369 ^a	-	-	-0.3768	-	-	-	-	-
		2	0.0102	0.0007	0.1865	-	-	0.7242 ^a	-	-	-	-	-
		Pooled	0.0087	0.0006	0.0669	-	-	0.821 ^a	-	-	-	-	-

^ap-value <0.01 ^bp-value <0.05 $u_{jt}^2, u_{jt}^2, u_{jt}^2$ -returns at different period

Time series-plot for major industry returns in BSE





Discussion

Table-1 visualizes the test of univariate normality for the Industry returns based on four different types of test namely Doornik-Hansen test, Shapiro-Wilk test, Lilliefors test, Jarque-Bera test. The results were performed for the industry returns based on two different time periods namely Period-1 and Period-2. As far as Period-1 is concerned the returns of the Auto Industry, Consumer durables, FMCG, Healthcare, Metal follows the normality at 5% level on the other hand the return of Capital goods, IT, Oil & gas and Public sector departed from normal distribution. Similarly, for the period 2 the return of industry such as Auto, capital goods, consumer durables, FMCG, Healthcare, IT, Metal, Oil & gas where departed from the normality assumption. In the same way the returns of Public sector followed normal distribution. The result of the pooled analysis shows, between the periods January 2000 to July 2014 the returns of FMCG industry, Public sector where alone distributed normally at 5% level. Hence, we conclude that the returns of the top industries in BSE do not follow the normal distribution. For further statistical analysis the researcher assumed that the returns of above said industries are normally distributed. Similarly Table-2 shows the descriptive statistics of log returns of the top industries in BSE. In period 1 the Consumer goods Industry and Metal Industry are 2.57% and 2.17% which is greater when compared to other industry data. Moreover, the co-efficient variance is also greater than 1 for all Industries shows the returns of the industries are having high variance. Similarly, in the period-2 the average returns of capital goods and healthcare are 1.28% and 1.02% respectively. From the period between January 2000 – July 2014 the returns of capital goods, Metal industry and oil & gas are 1.6%, 1.36% and 1.26% which are greater than when compared to other industries. More over the co-efficient of

variation Consumer durables for this Industry returns are greater than 1 which confirms the returns of top industry in BSE are highly dispersed. Table-3 exhibits the maximum lag length for the return of each industry. By using the Akaike criterion the optimum lag length of the returns was finalised for the Period-1, the minimum AIC was achieved for the returns of Capital goods, Consumer durables, FMCG, Health care, IT, Metal, Public sector undertaking and BSE overall sensex with an optimum lag length of 1. As far as the returns of Auto industry and oil & gas industry also attain the minimum AIC with lag length of 2 and 5 respectively. On the other hand, in the period-2 the returns of the industries such as Auto, Capital goods, Consumer durables, Health care, Metal, Oil & Gas, Public sector undertaking and BSE Overall sensex are having optimum lag length of 1, except the FMCG and IT industry. Finally, the pooled analysis that the returns of the Auto industry only has maximum lag length of 2 except the remaining industry. As far as Table 4 is concerned, it visualizes the result of the Auto-correlation function with the q-statistics. In Period-1, the returns of Auto industry is correlated with the previous 2 years returns and the q-stat reveals it is statistically significant at 5% level. Moreover in Period-2 the returns of capital goods industry are also correlated with the previous year at 5% significant level. Finally the pooled analysis reveals the results of Auto Industry, Capital goods Industry, Consumer durables, Metal are also significantly correlated with the previous year returns and 5% level, except the returns of FMCG, HC, Oil & gas, Public sector undertaking and overall BSE sensex respectively. Table-5 exhibits the results of the Augmented Dickey-fuller test (or) unit root test which helps to prove the random walk hypothesis for the returns of major industries in BSE. In Period-1 the ADF test confirms that the returns of Auto industry followed a random walk at 1%

significance level except other industries. As far as for Period-2 and the result of pooled analysis reveals that the results of top 10 Industries in BSE do not follow a random walk and the returns are stationary over the time periods. Table-6 shows the result of the GARCH model with order of AR and ARCH respectively. The results of industries like Auto, capital goods, Healthcare were the effect of previous year is carried forward to the following year and these industries are also affected by the factors like innovations and random shocks that happened whereas in case of industries Consumer durables, FMCG, IT, metal, oil & gas, public sector and Sensex are not influenced by previous year effects as well as the innovations, random shocks that happened.

Conclusion

This paper examined the effect of foreign direct investments on Industrial return volatility in BSE and the volatility of Sensex respectively. It is suggested that the impact of foreign direct investments have a significant effect on every industry in BSE and it is observed that investments by FIIs and the movements of Sensex are quite closely correlated and FIIs significant influence on the movement of Sensex. This provides a pointer for further research that foreign investments influence the performance of market in India.

Reference

- Darrat, Ali F. and Maosen Zhong (2000). "On Testing the Random-Walk Hypothesis: A Model-Comparison Approach." Volume 35, Issue 3, pages 105–124.
- Bekaert, G., and C. R. Harvey, (1997). "Emerging equity market volatility." *Journal of Financial Economics*, 43, 22-77.
- Bologna, P. and L. Cavallo (2002). "Does the Introduction of Stock Index Futures Effectively Reduce Stock Market Volatility? Is the 'Futures Effect' Immediate? Evidence from the Italian stock exchange using GARCH." *Applied Financial Economics*, 12, 183-192.
- Bollerslev, Tim (1986). "Generalized Autoregressive Conditional Heteroskedasticity." *Journal of Econometrics*, 31:307-327
- Chaudhuri, K., and Klaassen.F. (2001). Have East Asian stock markets calmed down, Evidence from a regime-switching model. Department of Economics Working Paper, University of Amsterdam.
- Jayakumar, David Sam and A. Sulthan (2013). "Modelling the Selection of Returns Distribution of G7 Countries." *Res. J. Management Sci.*, 2(11),1-15(2013)
- Alberga, Dima, Haim Shalita and Rami Yosef (2008). "Estimating stock market volatility using asymmetric GARCH models." *Applied Financial Economics*, 18, 1201–1208.
- Grabel, I. (1995). "Assessing the impact of financial liberalisation on stock market volatility in selected developing countries." *Journal of Development Studies*, 31, 903-917.
- Graciela, L. Kaminsky and L. Sergio, Schmukler (2003). Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization NBER Working Paper No. 9787
- Huang, B.N., and C.W Yang . (2001). "The impact of settlement time on the volatility of stock market revisited: An application of the iterated cumulative sums of squares detection method for changes of variance." *Applied Economics Letters*, 8, 665-668.
- Levine, R., and S. Zervos (1998). "Stock markets, banks and growth." *American Economic Review*, 88, 537-558.
- Li, J. Jeong-Bon K. V. (2004). "Foreign Equity Ownership and Information Asymmetry: Evidence from Japan." *Journal of International Financial Management and Accounting*, Vol. 15(3), pp185-211.
- Nilsson, B. (2002). Financial liberalisation and the changing characteristic of Nordic stock returns. Lund University, Department of Economics Working Paper 2002:4.
- Prasanna, P. K. (2008). "Foreign Institutional Investors: Investment Preferences in India." *JOAAG*, Vol. 3. No. 2
- Law, Siong-Hook and Wan Azman Saini Wan Ngaha (2008). "Does Stock Market Liberalization Cause Higher Volatility In The Bursa Malaysia." *International Journal of Business and Society*, Vol.9 No.1.
- Spyrou, S.I., and K. Kassimatis (1999). "Did equity market volatility increase following the opening of emerging markets to foreign investors?" *Journal of Economic Development*, 24, 39-51.
- Worthington, Andrew C. Helen Higgs (2004). "Random walks and market efficiency in European equity markets." *Global Journal of Finance and Economics*, 1(1), pp. 59-78.

Investment Behavior of Households: Post - Recession

Onkar Nath Mishra

**A
b
s
t
r
a
c
t**

Investment behavior is highly dynamic and is influenced by a host of factors besides economic considerations. Psychological factors determine the demand for and supply of financial and non financial assets. The prevailing situation influences the perception of investors regarding risk and return of available assets for investment. With the economic recovery underway, investment behavior of households in India too has witnessed changes. This research paper analyzed the investment behavior of Indian Households during the recovery period following economic recession. It also made a humble attempt to assess the future investment strategy of the household investors. The results show that household investors are optimistic about performance of their investment strategy but at the same time, are cautious.

Key Words: *Behavioural Finance, Economic Recovery, Risk and Return, Investment Strategy, Investors' Perception*



Onkar Nath Mishra
*Junior Research Fellow
Faculty of Management Studies
Banaras Hindu University
Varanasi-221005
Email: aavirmishra@gmail.com
Mob. +91-9905577665*

It has been close to a decade, since the economic crisis started. Though the worst time is over, recovery continues to remain tepid. The rickety fiscal positions of many European governments have not only taken its toll on the ruling regimes and their respective economies, but have endangered the sustainability of EU. American and Japanese economies are still struggling, and Middle East is busy in mending its own home. However, emerging economies like India are experiencing moderate growth rate. With the new government assuming office in 2014, economic reforms have received a fresh impetus, and results have been highly favourable. Not only the macro-economic fundamentals are sound, but growth rate and employment is increasing.

Consequently in a situation, when Indian economy is highly better placed than its Asian and western counterparts, how has the behavior of households changed, is an interesting issue to examine. Household investors have bore the brunt of recession, as for instance, several months of double digit negative stock market returns eroded huge chunks of the

total investment value of household investors. They revamped their investment strategies in tune with the time. The return on fixed deposits and gold has declined. This in turn, has changed the entire chemistry of risk and return of different investment assets. Furthermore, some policy changes like interest on daily balances on saving accounts, freeing up of interest rate on saving accounts with deposits over one lakh, and introduction of new pension schemes like Atal Pension Yojna have important bearings for household investors. Keeping pace with the changing times and under the liberalized financial sector regime, the financial institutions have come up with innovative instruments to meet the growing demand of modern investors. But this innovative and diversified financial system could not have lost the appeal of traditional means of investment.

All these have led to important behavioral changes in the investment attitude and behavior of households. It is against this backdrop that this study makes an attempt to capture the dynamics of the household investment in the recovery period relative to crisis period and also tries to assess the outlook of household investors for the near future.

The investment behaviour of households has significant importance for the financial sector, as well as for the economy in general. Its importance emanates from the fact that, it is the highest contributor to the gross domestic saving in India. An understanding of household portfolio allocation enables policymakers to estimate the likely impacts of various policy decisions, such as change in the welfare payments and the introduction of a consumption tax as evidenced by Dilnot (1990) and Freebairn (1991). Our findings have a bearing both on investor protection and on capital market's development. This research shall facilitate the finance professionals, financial planners, and financial institutions to better understand the preferences of household investors, and in turn, come up with such financial instruments which are in tune with their risk and return preferences to attract the savings of these investors. Furthermore, it has relevance for the government and central bank. It shall help them to put in place the needed legislations and policies to better protect the interest of household investors.

This paper supplements the existing literature in several ways. First, it fills a critical gap in the literature on the post financial crisis by showing how household investors' perceptions, motivations and preferences have changed after

the period. Secondly, as said earlier, it makes a contribution to the literature on behavioural finance thereby enriching it.

The rest of the paper proceeds as follows. Section 2 gives a review of the literature available, and also tries to highlight the literature gap on this topic. Section 3 presents the research questions which guided this work. This section also outlines the research methodology adopted for this study, which includes discussion on sample design and questionnaire design. Section 4 is concerned with the empirical analysis of the data and derives important findings. Section 5 sets out the limitations of the study and then concludes.

Literature Review

Behavioural finance is a new paradigm of finance, which seeks to supplement the standard theories of finance by introducing behavioural aspects of decision making process. Behavioural finance emerged as a result of the limitations of the traditional finance. According to behavioural finance, investor's market behaviour derives from psychological process of decision making to explain why people buy and sell financial and real assets (Hussein, 2005). It focuses upon how people act on information they receive and analyse the circumstances prevailing to take investment decisions. Behavioural finance has been defined by Shefrin (1999) as "a rapidly growing area that deals with the influence of psychology on the behaviour of financial practitioners." However, it has been not until the last few years that researches in this area have become popular. This study is also a part of behavioural finance wherein an attempt has been made to capture the changed dynamics of household investors after the crisis period.

In spite of the importance of this subject matter, surprisingly there is a great paucity of literature on this topic. Little is known to date about how the financial crisis affected individual investors' perceptions, behaviour, and performance. It can be attributed as stated earlier, to the fact that research in behavioural finance is a relatively recent phenomenon. Furthermore, most studies look at the crisis through the prism of financial institutions (Shin, 2009; Markus Brunnermeier, 2009; Maddaloni and Peyd There ró, 2011; Gropp, Hakenes, and Schnabel, 2010), corporate investment decisions (Campello et al., 2011), households (Michael, Hurd and Rohwedder, 2010), bank lending (Ivashina and Scharfstein, 2010; Santos, 2011), the crisis's

causes and consequences for housing and securitization markets (Foote et al., 2008; Piskorski, Seru, and Vig, 2010; Demyanyk and Van Hemert, 2011), and financial contagion (Longstaff, 2010; Tong and Wei, 2011). Another worth point to be noticed is that most of the literature available even on the above mentioned topics relate to western economies. Studies on this topic in Indian context are not available, barring a few. This acted as one of the motivations for this study.

Of the studies that are available on investment behaviour, majority of them relate to that of institutional investors in western economies. However, there exists a good deal of literature on investors' attitude towards stock market investments during the financial crisis. The financial meltdown caused shrink in investor portfolio's value coupled with the market's high uncertainty and extreme volatility likely induced individual investors to radically change their perception of the stock market and/or their own investment behavior (Hudomiet, Kézdi, and Willis, 2011). For some investors, it may even have led them to shy away from equity investment all together (Bucher-Koenen and Ziegelmeier, 2011). Ultimately, the recent shock to financial-market returns might permanently lower households' stock-market participation (Malmendier and Nagel, 2011), leading to possible future welfare losses (Cocco, Gomes, and Maenhout, 2005).

Few studies are there which analyze the risk preference and impact of demographic variables on the investment behavior during and after the financial crisis. There are empirical evidences to show that during financial crisis and in the following recovery period people became more risk averse. Odean (1998) showed theoretically that overconfident investors hold riskier portfolios than do rational investors with the same degree of risk aversion. Also the selection of different investment avenues is greatly influenced by the marital status and sex during any crisis period. Married men and women divert their funds from risky to safe assets (Sunden and Surette, 1998). Also the proportion of risky assets in the portfolio declines for female headed households during financial crisis (Jianakoplos and Bernasek, 1998; Bernasek and Shwiff, 2001). Married women also invest less in common stock than married men, holding constant age and income (Hinz, McCarthy and Turner, 1997).

There are findings that conservative investors moved a majority of their assets into money market funds while risk-taking participants poured more money into equity funds

(Ho, William and Linda, 2010). Investors who outperformed during the height of the crisis also performed better before. Afterward, however, they became more risk tolerant, were no longer less likely to trade, and no longer outperformed, suggesting that their success made them overconfident about their investment skills (Hoffmann, 2011).

Davar and Suveera (2007) in their paper on investment decision making revealed that, the class of investors with growing age develop maturity and experience for making decisions about the usage of their surplus and available funds, in the light of overall economic needs of family. Another empirical study conducted by Salam and Kusum (2008) on savings behaviour in India, revealed that household sector savings provided the bulk of national savings. The study reported that the share of total household saving has gone up from 75.9 per cent in 1980-81 more than 86 per cent in 2007-08.

Research Approach and Methodology

This study has been undertaken around the following research questions:

- **Question 1:** What are the objectives of the investment undertaken by the households in the post crisis period?
- **Question 2:** What investment avenues have become popular among the household investors?
- **Question 3:** Is there any significant difference between the choice of investment assets across regions and income group?
- **Question 4:** What do household investors perceive about the various investment avenues, and what are their plans in the near future?
- **Question 5:** Have the household investors become more attentive and cautious as a consequence of financial crisis with regard to their short or long term investments?
- **Question 6:** What is the time horizon of investments made after the crisis period?

It is an empirical study based on cross sectional data. The empirical perspective refers to an inductive method where general conclusions are based on empirical data. The researcher first takes an empirical point of view (data collection) and thereafter relates findings to the theory.

This study is based on primary data. Data has been collected using a well designed questionnaire primarily through survey method. Some questionnaires were emailed to the respondents. Households who were willing to divulge the details of their investment decisions were included in the sample. A multi dimensional analysis has been carried out to judge the preference of households. Furthermore, an investment game has been applied to ensure high reliability.

The sample size is large. The strength of the sample is 500. The respondents belonged to various regions of the country, which in our study was divided into five regions- northern, western, central, eastern, and central. From each region a convenient sample of 100 respondents were selected. The survey was conducted during a period of 4 months from February 2015 to May 2015.

A well designed questionnaire was used to collect data from the respondents. It consisted of two sections. Section one contained 10 questions to collect demographic information of the respondents. Section two had questions related to the investment behavior. Of the total 13 questions in section two, first ten questions were aimed at exposing the behavior of households during and after the crisis period, while the last three questions were to assess their outlook for the next two years with regard to their investment prospect. In order to measure the attitude, Likert scale format was used. There were in built checks in it to detect inconsistency. Filled questionnaires were scrutinized stringently, and only highly consistent and reliable questionnaires have been included as a part of final study.

Data analysis and findings

Demographic Details

The purpose of this section is to describe the profile of the households who responded to the survey questionnaire and who have been included as part of the final study. Based on the findings of previous studies, gender, age, income, occupation, education etc, have been identified as the most important demographic variables for study of this nature.

The questionnaire was addressed to that member of household who was responsible for investment decisions of the household. The households were divided into middle class and upper class based on Monthly Per Capita Income (MPCI). Households with MPCI of more than Rs. 6000 were categorized as upper class and as middle class, if MPCI lies from Rs. 3000 to 6000. The demographic summary of the

households is presented in tables 1 and 2 given in Appendix 1. Important findings are listed below:

- The median monthly income of the sample households was Rs. 14, 195. Lower quartile was Rs. 7, 205, and upper quartile was Rs. 27, 951.
- The number of sample households belonging to middle class was 341, and to upper class was 159. The mean MPCI of middle class was Rs. 5, 367, and that of upper class was Rs. 9,786.
- Almost 80% of the sample households had more than one working member.

Saving and investment position

Saving and investment position of sample households have been summarized in tables 3 and 4 given in Appendix 1. Important findings regarding saving and investment scenario of the sample households is given below:

- The majority of middle class households were saving 16 – 20% of their monthly income during the crisis period. Households saving quarter or more of their monthly income were only 11% approximately. Around 67% of middle class households were saving only one fifth of their monthly income. In case of upper class households, majority of them (30%) were saving 21-25% of their monthly income. The households saving more than quarter of their monthly income was around 31% which is roughly thrice the middle class households for the same category. No household was reported saving 0-10% of the monthly income in upper class, while for middle class the corresponding percentage was 17.88%.
- The highest percentage (45.17%) of middle class households was investing Rs. 1-2 lakhs per annum, and a quarter upto 1 lakhs. Only 6% of these households were investing more than 3 lakhs per annum, while for upper class this proportion was more than four times i.e. around 28%. Around one third of upper class households were investing Rs. 2-3 lakhs per annum.

Behavioral Characteristics

An analysis of behavioral characteristics of household investors can be done under following heads:

a) Investment objectives

Every investor seeks to achieve some goal from his investment. In order to ascertain the investment objectives

of households after the crisis period, they were asked to rank the objectives in the priority order. The result is shown in the table 1.

Table 1: Distribution of Sample Households by their Investment Objectives

Rankings	Capital Appreciation	Capital Preservation	Income	Low Volatility	Tax relief
Rank 1	204	116	75	38	67
Rank 2	168	196	115	12	9
Rank 3	49	88	136	119	108
Cumulative % of first three ranks	84.20	80.0	65.20	33.80	36.80
Rank 4	54	76	55	67	248
Rank 5	25	24	119	264	68

Source: primary survey

The data in the table suggest that capital appreciation, capital preservation, and income were the first three most sought after goals of investment respectively. Clearly, most investors aimed at offsetting the losses they suffered during the crisis. 84.20% of households gave one of the top three ranks to capital appreciation followed by capital preservation. This indicates towards the hidden desire of maximizing return.

b) Investors' Preference for Various Assets and Strategy: a multi dimensional analysis

In order to determine the investors' preferences reliably, we adopted a multi-dimensional approach by collecting from household heads, a variety of information regarding their investment activities, such as:

- the asset ownership at present,
- alterations in portfolio after the crisis period,
- perception regarding satisfaction from investment types held,
- future investment intentions; and

- choice of investment types in a hypothetical investment game.

Let us take the case of asset ownership by households at present. As per the data summarised in the table 5 of Appendix 1, it is clear that gold, fixed deposits, insurance, real estate, and mutual funds respectively, were the top five assets owned by the households with cent percent of them owning gold. Direct equity investment is still not popular.

In order to find out the changes that households made after the crisis period in their portfolio, it was ascertained that what percent of households either made net addition or withdrawal to the specific assets after crisis period. It has important implications, as net additions mean preference of that asset over other asset. The picture is clear- mutual funds, real estate, insurance and fixed deposits are the net gainers with more households injecting funds in these assets than those withdrawing. Other gainers are bonds and gold. In order to gauge the past experience from investing in popular assets their satisfaction level has been measured. The result is shown in figure 1.

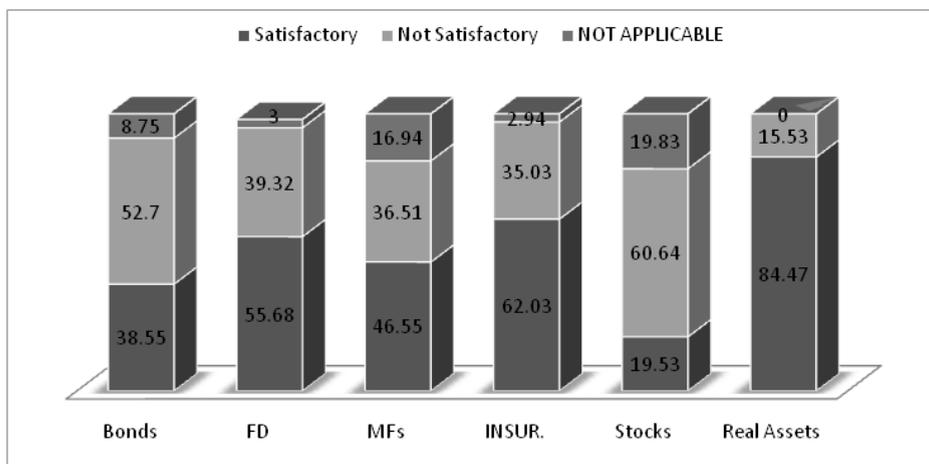


Figure 1: Satisfaction Level of Sample Households

From the diagram the finding is that, households were highly satisfied from their investments in real estate, mutual funds and FDs in that order, while insurance betrayed their expectations.

In order to find out the future investment intentions of the sample households, they were asked to express their likelihood of investment to be made in top six popular assets. This allows checking for the consistency in preference for assets. Also it helps to know whether the investors charm

for the assets from which they derived satisfactory returns is likely to continue or not. The relevant table for this is table 7 in the Appendix 2. It is crystal clear that real estate and mutual funds has become the apple of the eye of investors. Real estate is more than two and half times more popular than stocks among intending investors, and mutual funds too attracts almost 70% of intended investors. Insurance will continue to receive step motherly treatment, while bonds are expected to witness good flow of funds. Figure 2 shows the details.

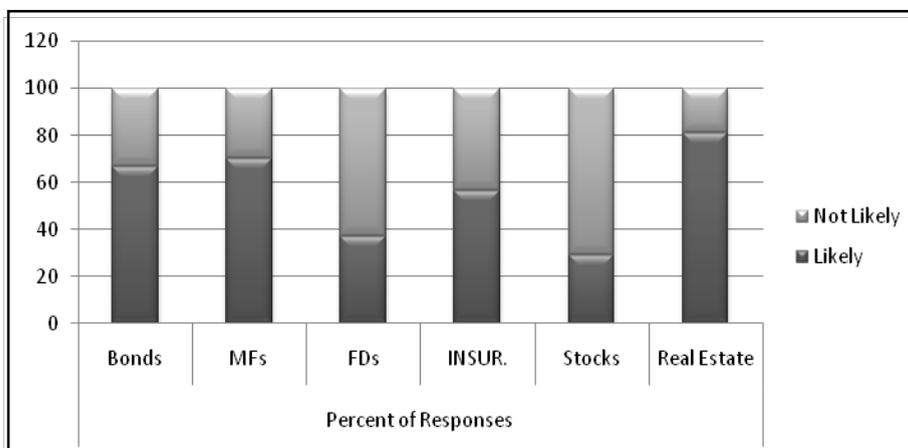


Figure 2: Preference of Investors for Future Investment

Finally, an investment game was designed to capture the dynamics of flow of saving to various competing assets. The game used a notional sum and asked the investors to

indicate how much of this sum would they like to ‘bet’ on each investment type. The result is summarized in table 8 in Appendix 2. The pie chart below depicts the results.

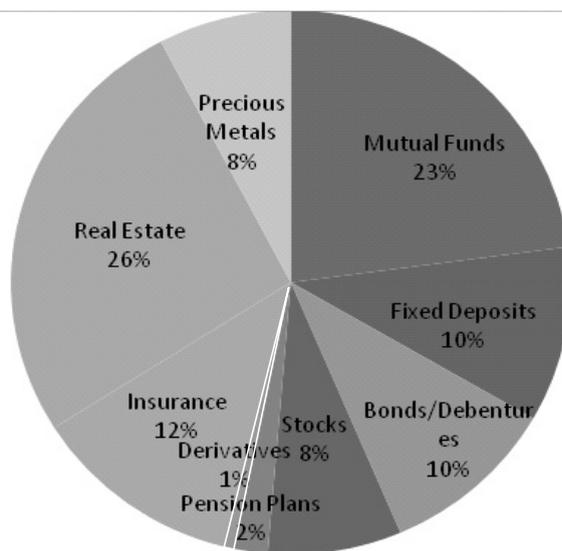


Figure 3: Allocation of Notional Sum among Various Assets

This method has many merits: it compensates for the fact that many households are reluctant to disclose actual information about their saving and investment, it forces respondents to analyse the relative worth of various assets for them, and it highlights the degree of competition among various seekers of savings of households. The pie chart clearly shows that mutual funds, real assets and insurance garner 69% of total saving, leaving less than one third for all the other remaining assets.

c) Perceptions Regarding Security of investment

How far the recovery has been able to instill the feeling of security among the household investors has been analyzed in a very detailed manner. The results have been summarized in table 9 given in Appendix 2, while abridged version is reproduced in table 2 below.

Table 2: Break Up of Sample Households Across Various Regions By Feeling of Security Towards Investment During Crisis

How Secure	Northern	Western	Central	Southern	Eastern	Total
Secure	59	66	53	74	37	57.80%
Neither nor	2	4	9	6	14	7.0%
Not secured	39	30	38	20	49	35.20%
Total	100	100	100	100	100	100%

The table clearly shows that roughly 58% of households were having a feeling of security towards their investment. However, this feeling is more profound in western and southern regions as compared to other three. A little more than one third (35.20%) of households felt that their investment was insecure. Households from eastern, northern and central were less optimistic about safety of their investment as compared to their western and southern counterparts. In fact the number of households from eastern

region as compared to southern one feeling that their investment was pretty safe is only half. 7% of households were uncertain about the safety of their investment.

The data has been analyzed using chi square test to find out that whether there is any significant difference among household investors across various regions regarding their perception towards the safety of their investment portfolio.

H_{01} = Household investors across all regions have same perception regarding the security of their investment.

H_{A1} = Household investors across all regions do not have same perception regarding the security of their investment.

- $\chi^2_{cal.} = 105.52$
- $\chi^2_{tab.} = 15.5$ at 5% level of significance with degree of freedom = 8
- Since $\chi^2_{cal.} > \chi^2_{tab.}$ null hypothesis is rejected, meaning thereby, there is significant difference among household investors from various regions regarding their perception towards security of their investment.

d) Change in Monitoring of Investment

In order to discern whether the household investors have become more cautious and attentive as a consequence of financial crisis, a question concerning the monitoring of investment was asked. The result is summarized in table 10

in Appendix 2. From the table it is clear that, a thumping majority of households increased the frequency of monitoring their short term investment after the crisis period, as compared to before it. However, almost 60% of households clearly denied from more frequent monitoring of long term investments. Also a greater percentage of households were in a confused state in case of monitoring short term against long term investment.

e) Investment Time horizon

To establish whether the preference of investors have undergone any change with respect to the time horizon, we asked respondents to tell the time period for which they made bulk of their investment after the crisis period. The result is summarized in table 11 of Appendix 2. The finding shows that an overwhelming almost 75% of investors opted for medium term investment. They avoided short and long term investments. Table 3 shows preference for short, medium and long term investment across various income groups.

Table 3: Classification of Sample Households Across Different Income Classes By Time Horizon of Their Investment

Income Class	No. of Households			
	Short Term Investment	Medium Term Investment	Long term Investment	Total
1-2 lakhs	7	34	24	65
2-3 lakhs	8	155	15	178
3-4 lakhs	17	131	17	165
Above 4 lakhs	36	51	5	92
Total	68	371	61	500

It will be interesting to test that all income classes have same perception regarding preference for investments of different maturity or not.

H_{02} = Income of the household investors does not determines their preference for time horizon of investment.

H_{A2} = Income of the household investors does determines their preference for time horizon of investment.

- $\chi^2_{cal.} = 39.51$
- $\chi^2_{tab.} = 12.6$ at 5% level of significance with degree of freedom = 8
- Since $\chi^2_{cal.} > \chi^2_{tab.}$ null hypothesis is rejected. It means that household preferences for period of investment are affected by their income levels.

f) Intending Strategy

To peep into the minds of household investors regarding their near future strategy a set of 5 questions was posed before them. The finding is that 96% of households are going to step up their investment during next year. 71.62% of household investors plan to review their portfolio performance, and around 43% will alter the investment mix and another 26% may do so. Also, most of household are confident that they can manage their investment without the aid of financial planner. One interesting finding is that 69.59% of investors are not in a mood to try any new financial product. This is a real challenge before financial sector.

Conclusion

From an in depth analysis of the data and findings made above, we can easily deduct some important conclusions.

First, in the aftermath of financial crisis households are aiming at recovering their lost capital, but are also cautious. They are making investment with some sense of fear. They are also avoiding short and long term investment. There are surveys which support that long term investment is still not popular among Indians. This shows that they are uncertain of the changes taking place in the long run. Second, they were better satisfied from the return they received from real assets as compared to financial assets. Traditional assets are still stronger magnets as attracters of household saving and the crisis has only added to their vigour. This trend is prevalent across all regions and income groups. They have become more cautious of their investment, and hence are not in a mood to experiment with any new product. But at the same time, the recovery of Indian economy has instilled a sense of security among them. It is clear from the fact that assets under mutual funds have increased to new heights.

No study is perfect, and this study also accepts it in a straight forward way. The widespread reluctance to disclose personal income and investment information is a major obstacle, whatever sampling procedure is adopted. Hence, errors might have cropped in. Secondly, the sample size is small, and it does not represent the universe of investors adequately. Hence future studies should be undertaken with a larger sample size and more suitable techniques to uncover the investment behaviour of Indian households.

References

- Bernasek, Alexandra and Stephanie Shwiff (2001). "Gender, Risk, and Retirement." *Journal of Economic Issues* 2, pp. 345-356.
- Brunnermeier, Markus K. (2009). "De-Ciphering the Credit Crisis of 2007." *Journal of Economic Perspectives*, Vol. 23(1), pp 77-100.
- Bucher-Koenen, Tabea and Michael Ziegelmeyer (2011). "Who lost the most? Financial literacy, cognitive abilities, and the financial crisis." Working Paper Series 1299, European Central Bank.
- Campello, Murillo et al. (2011). "The Real and Financial Implications of Corporate Hedging." *Journal of Finance*, Volume 66, Issue 5, pp 1615-1647.
- Claessens, Stijn, Hui Tong and Shang-Jin Wei (2011). "From the Financial Crisis to the Real Economy: Using Firm-level Data to Identify Transmission Channels." NBER Working Papers 17360, National Bureau of Economic Research, Inc.
- Cocco, João F., F. Gomes and P. Maenhout (2005). "Consumption and Portfolio Choice Over the Life-Cycle." *The Review of Financial Studies*, pp 491-533.
- Davar, Yash Pal and Suveera Gill (2007) - Cited in Jains, Dhiraj and Dashora, Nakul (2012). "A Study on Impact of Market Movements on Investment Decision: An Empirical Analysis with respect to Investors Udaipur, Rajasthan." *Researches world*, International Refereed Study Journal. III (2:2); 2007: 79-86.
- Demyanyk, Y. and O. Van Hemert (2010). "Understanding the Subprime Mortgage Crisis." *Review of Financial Studies*.
- Dilnot, A. W. (1990). "The Distribution and Composition of Personal Sector Wealth in Australia." *Australian Economic Review*. 1st Quarter; 1990: 33-40.
- Foote, C. L., K. Gerardi, L. Goette, and P. S. Willen (2008). "Just the Facts: An Initial Analysis of Subprime's Role in the Housing Crisis." *Journal of Housing Economics*, 17, pp. 291-305.
- Freebairn, J. (1991). "Some effects of a consumption tax on the level and Composition of Australian Saving and Investment." *Australian Economic Review*, 4th Quarter: 13-29.
- Gropp, Reint, Hendrik Hakenes and Isabel Schnabel (2010). "Competition, Risk-shifting, and Public Bail-out Policies." *Review of Financial Studies*, Oxford University Press for Society for Financial Studies, vol. 24(6), pp 2084-2120.
- Gupta, S.C. and V.K. Kapoor (2006). "Fundamentals of Applied Statistics." S Chand and Sons, New Delhi, 2006

- Hansen, M.H., W. N. Hurwitz, and W. G. Madow (1993). "Sample Survey Methods and Theory," John Wiley & Sons, New York.
- Hinz, Richard P; David D. McCarthy, and John A. Turner (1997). "Are Women Conservative Investors? Gender Differences in Participant-directed Pension Investments." Philadelphia: University of Pennsylvania Press, pp. 91-103.
- Ho Raymond, J. K. William and K. W. Linda (2010). "How does a financial crisis affect 401 (k) participant's investment Behaviour? An explorative study." Proceedings of ASBBS, Vol. 17, pp 503 -510.
- Hoffman, P. (2011). "Education materials to assist with sound decision making." Ascent Update, Quarterly Newsletter, Russell Investments Ltd, New Zealand.
- Hudomiet, Peter, Gabor Kezdi, and Robert J. Willis (2011). "Stock Market Crash and Expectations of American Households." *Journal of Applied Econometrics*, Vol. 26, No. 3, pp. 393-415.
- Hurd, Michael D. and Susann Rohwedder (2010). "Effects of the Financial Crisis and Great Recession on American Households." NBER Working Papers 16407, National Bureau of Economic Research, Inc.
- Hurd, Michael D. and Susann Rohwedder (2010). "The Effects of the Economic Crisis on the Older Population." Michigan Retirement Research Center Working Paper 2010-231.
- Hussein, A. H. T. (2005). "Factors Influencing Individual Investment Behaviour: an empirical study of the UAE Financial Markets." IBRC, Athens.
- Ivashina, V. and D. S. Scharfstein (2010). "Bank Lending during the Financial Crisis of 2008." *Journal of Financial Economics*, 97, pp 319-339.
- Jianakoplos, Nancy Ammon and Alexandra Bernasek (1998). "Are Women More Risk Averse?" *Economic Inquiry* 36, pp. 620-630.
- Longstaff, F. A. (2010). "The Subprime Credit Crisis and Contagion in Financial Markets." *Journal of Financial Economics*, 97, pp. 436-450.
- Malmendier, Ulrike and S. Nagel (2011). "Depression Babies: Do Macroeconomic Experiences Affect Risk-Taking?" *Quarterly Journal of Economics*, vol. 126(1), pp. 373-416.
- Massa, Massimo and Simonov, Andrei (2011). "Behavioral Biases and Portfolio Choice." Annual Conference Paper No. 717.
- Nagy, R. A. and R. W. Obenberger (1994). "Factors influencing Investor Behaviour." *Financial Analysts Journal*, pp 63-68.
- Odean, T. (1998). "Are investors reluctant to realize their losses?" *The Journal of Finance*, Vol. LIII, No.5.
- Piskorski, T., A. Seru, and V. Vig (2010). "Securitisation and Distressed Loan Renegotiation: Evidence from the Subprime Mortgage Crisis." Chicago Booth School of Business Research Paper No. 09-02, AFA 2010 Atlanta Meetings Paper.
- Salam, Abdus and Umma Kulsum (2010). "Savings Behaviour in India: An empirical study." *The Indian Economic Journal*. Cited in Singh, Kanhaiya 2010, Growth of Personal Savings in Post Liberalization Era in India. Available from: URL: http://www.papers.ssrn.com/sol3/papers.cfm?abstract_id=1700406.
- Shefrin, Hersh (2000). *Beyond Greed and fear: Understanding Behavioural Finance and Psychology of Investing*. Harvard Business School Press.
- Shin, Hyun Song (2009). "Financial Intermediation and the Post-Crisis Financial System" BIS Annual Conference Paper.
- Sunden, A. E. and Crette Brian (1998). "Gender Differences in the Allocation of Assets in Retirement Savings Plans." *American Economic Review*, Papers and Proceedings 88, pp. 207-211.

Appendix-1

Table 1: Demography Summary (1)

Gender	No. of Respondents	%
Male	300	60
female	200	40
Residence		
Urban	340	68
Rural	160	32
Age		
Upto 25	144	28.80
26 – 35	205	41.00
36 – 45	103	20.60
46 – 55	33	6.60
Above 55	15	3.00
Income		
10K – 20 K	65	13.00
20K – 30K	178	35.60
30K – 40 K	165	33.00
40K and above	92	18.40
Family size		
1	47	9.40
2-5	243	48.60
6 and above	200	42.00
Education		
Uneducated	17	3.40
High School	65	13.00
SHS	84	16.80
Graduate	213	42.60
P G and above	121	24.20

Table 2: Demography Summary (2)

Occupation	No. of Respondents	%
Full time	312	62.40
Part time	64	12.80
House wife	6	1.20
Unemployed	51	10.20
Retired	77	15.40
Marital Status		
MWC	69	13.80
MDC	297	59.40
MIC	85	17.00
SNG	49	9.80
Nature of Employer		
Govt. employee	144	28.80
Govt. enterprises	82	16.40
Private enterprises	111	22.20
MNCs	56	11.20
Self employed	107	21.40
Earning members in family		
1	103	20.60
2	223	44.60
3	113	22.60
4 and above	61	12.20

NOTE

MWC - married without children

MDC- marriedwith economically dependent children

MIC- married with economically independent children

Table 3: Distribution of Sample households According To Their Saving

Class	Up to 10%	11-15	16-20	21-25	> 25
Middle class	61	55	112	74	39
Upper class	nil	16	45	48	50

Table 4: Distribution of Sample households According To Investment Bracket

	Upto 1 lakh	1-2 lakhs	2-3 lakhs	Above 3 lakhs
Middle class	87	154	78	22
%	25.51	45.17	22.87	6.45
Upper class	15	47	52	45
%	9.43	29.55	32.72	28.30

Table 5: Distribution of Sample Households According To Ownership of Assets and Net Changes Made During Crisis Period in Specific Investment Types

Assets	Percent of Responses			
	Ownership	Net Addition	Net Withdrawal	Not Applicable
Fixed Deposits	97.5	80.0	20.0	3.0
Public Deposits	11.45	0.0	9.46	90.54
Insurance	97.00	78.87	17.44	3.69
Stocks	80.17	16.85	42.03	41.12
Bonds	83.06	32.63	30.82	36.55
Real estate	91.25	49.50	32.60	17.90
Pension Plans	4.08	1.83	-	98.07
Derivatives	0.42	0	0.42	99.58
Mutual Funds	88.46	43.70	19.06	37.24
Precious Metals	100	65.0	-	35.0

Appendix-2

Table 6: Analysis of Household Investors According To Their Satisfaction Level of Investing In Specific Assets

How Satisfactory	Percent of Responses					
	Bonds	FD	MFs	INSUR	Stocks	Real Assets
Very Satisfactory	12.85	13.55	31.92	21.03	3.46	53.07
Satisfactory	25.70	42.13	14.63	41.0	16.07	31.40
Sub Total	38.55	55.68	46.55	62.03	19.53	84.47
Dissatisfactory	33.08	32.33	22.45	28.59	17.83	13.10
Highly Dis-satisfactory	19.62	8.99	14.06	6.44	42.81	2.43
Not applicable	8.75	3.0	16.94	2.94	19.83	-
Sub Total	61.45	44.32	53.45	37.97	80.47	15.53
Column Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 7: Distribution of Sample Households By Preferences For Various Investment avenues for Next Two years

How Likely	Percent of Responses					
	Bonds	MFs	FDs	INSUR.	Stocks	Real Estate
Very likely	41.63	52.88	24.68	43.09	21.35	63..0
Somewhat likely	24.87	17.04	12.49	13.58	7.84	17.85
Sub Total 1	66.50	69.92	37.17	56.67	29.19	80.85
Not much likely	3.50	27.53	40.66	30.0	15.13	9.86
Not at all	33.0	2.55	22.17	13.33	55.68	9.29
Sub Total 2	33.50	30.08	62.83	43.33	70.81	19.15
ColumnTotal	100.0	100.0	100.0	100.0	100.0	100.0

Table 8: Allocation of Notional Sum of Rs. 1 lakh by SampleHouseholds Among Specific Investment Types

Investment types	Amount Allocated	% of allocation	% of Households
Fixed Deposits	1, 14,50,000	22.90	65.77
Mutual funds	52,14,000	10.428	24.96
Bonds/Debentures	51,28,000	10.25	35.05
Stocks	38,65,000	7.73	34.86
Pension Plans	9,55,000	1.91	16.92
Derivatives	2.96,000	0.59	4.27
Insurance	61.06.000	12.21	41.18
Real Estate	1,31,37,000	26.27	76.49
Precious Metals	38,49,000	7.69	51.85
Total	5,00,00,000	100.0	-

Table 9: Break Up of Sample Households Across Various Regions By Feeling of Security Towards Investment During Recovery

How Secure	Northern	Western	Central	Southern	Eastern	Total
Not at all secure	37	52	28	46	22	185 (37%)
Not Secure	22	14	25	28	15	104 (20.80%)
Neither nor	2	4	9	6	14	35 (7.00%)
Sub Total	61	70	62	80	51	324 (64.80)
Secure	31	16	20	12	34	113 (22.60%)
Very secure	8	14	18	8	15	63 (12.60%)
Sub Total	39	30	38	20	49	176 (35.20)
Total	100	100	100	100	100	500

Table 10: Monitoring Investments

Investment Types	Percent of Responses			
	Yes	No	Can't say	Total
<i>Short Term Investments</i>	78.65	13.41	7.94	100.0
<i>Long Term Investments</i>	36.13	60.03	3.84	100.0

Table 11: Classification of Sample Households By Time Horizon of Their Investment

	Percent of Responses				
	Upto 1 year	1-3 years	3-5 years	5-10 years	>10 years
No. of Households	68	137	234	29	32
%	13.60	27.40	46.80	5.80	6.40

Table 12: Intending Investors Strategy During next One Year

Responses	Percent of Responses				
	23.1	23.2	23.3	23.4	23.5
Yes	95.83	71.62	42.92	29.48	26.81
No	-	24.56	30.84	65.33	69.59
May be	4.17	3.82	26.24	5.19	3.60
Total	100.0	100.0	100.0	100.0	100.0

Knowledge Sharing Behavior and Innovation Capability: HRM Practices in Hospitals

U. Syed Aktharsha and Sengottuvel A.

Abstract

The purpose of this paper is to examine the relationship among the HRM Practices, Knowledge Sharing Behavior and Innovation Capability. A sample of 175 nurses was drawn from the population of 750 nurses using a structured questionnaire from four hospitals in Tiruchirappalli district. The results of analysis have shown that out of five HRM practices, three HRM practices viz., Recruitment and Selection, Compensation and Reward, and Performance Appraisal are found to be significant predictors of Knowledge sharing behavior and it plays a vital role in predicting the Innovation Capability of Hospitals.

Key Words: HRM Practices, Knowledge Sharing Behavior, Innovation Capability.



Dr. U. Syed Aktharsha,
Associate Professor,
Jamal Institute of Management,
Jamal Mohamed College (Autonomous),
Tiruchirappalli, Tamil Nadu.
Email: syedjmcjim@gmail.com

Sengottuvel A.,
PhD Scholar,
Jamal Institute of Management,
Jamal Mohamed College (Autonomous),
Tiruchirappalli, Tamil Nadu.
Email: mathanvel28@gmail.com

Human Resource Management (HRM) is defined as the productive use of people in achieving the organization's strategic business objectives (Stone, 2009). Storey (1995) proposed that HRM has both "soft" and "hard" dimensions. There are some who treat HRM as the entire field of "people management" without specific favorable approach. On the other hand, there are others who focus on the "hard" dimension, likely to apply a utility approach to the management of human resource such as through utilization of a highly committed and capable workforce in order to maximize output of individual and organization. In HRM research, there are two dominant normative models influencing how firms should make decision in workforce management: the "best-fit" model and "best-practice" model (Boxall and Purcell, (2000). The "best-fit" model postulates that HR strategies will be more effective if they fit certain critical contingencies in the business environment, e.g. social, industry and organizational factors. On the contrary, the advocates of the "best practice" model display universalism and adopt "best practice" in the way they manage the workforce. Boxall and Purcell (2000) conclude that most firm HR strategies are created to suit environmental contingencies, favoring the "best-fit" model.

However it does not invalidate all “best practice” thinking. In general, the HRM practices deployed by organizations are staffing i.e. HR planning, recruitment and selection; HR development i.e. training, development and career planning and development; compensation i.e. direct and indirect financial compensation and nonfinancial compensation; safety and health; and employee and labor relations (Mondy, 2010). HRM practices enable the shaping of employees’ skills, abilities, values, belief, attitudes and behaviors through hiring, socializing and developing a firm’s pool of human. For instance, providing training and development to employees, such as on-the-job training, job rotation, coaching, mentoring, in-basket training, case study etc. can help to improve the knowledge, skills, experience, abilities and motivation of employees. Pfeffer (1998) identified seven dimensions of effective people-oriented management that has led to substantially enhanced profitability. These are: employment security, selective hiring, self-managed teams, organizational performance-based high compensation, extensive training, reduced status distinctions and extensive sharing of information. Subsequently, the work of Wright et al. (2001) suggested that HRM practices formed the basis of dynamic capability, knowledge management and intellectual capital, leading to the achievement of core competencies.

Hence, it is implied that HRM practices are important tools in harnessing core competencies, and performance of organizations. Knowledge is conceptualized as codified information including insight, interpretation, context, experience, wisdom, and so forth (Davenport and Volpel, 2001), which enhances a firm’s value and the achievement of its objectives, mission and vision. In an organization, job-related knowledge is an essential element determining the career success of an employee, together with her/his skills and ability. Knowledge is generated and resides in the mind of employees (Churchman, 1972, as cited by Alavi and Leidner, 1999), and will contribute little to the firm if it is not widely shared among the organizational members. It is even more detrimental to the firm if knowledgeable employees leave the firm, following better opportunities offered by other firms. This results in a “brain drain,” with the employees taking their knowledge with them. There are two types of knowledge, with different propensity for sharing: explicit knowledge and tacit knowledge (Koskinen et al., 2003). Explicit knowledge is usually shared and communicated by employees willingly, e.g. technical details of products, materials, tools, etc. Conversely, tacit knowledge is reluctantly and rarely shared among employees, e.g.

perceptions, belief, experience etc. According to Hsu and Shen (2005), tacit knowledge should not be seen as independent of explicit knowledge, as the sharing of explicit knowledge must rely on the tacit knowledge of the receiver for explicit knowledge to be understood and facilitate new knowledge creation. Knowledge sharing is defined as the dissemination of information and knowledge through the whole department and/or organization (Yang, 2004). Knowledge sharing should be encouraged for firms to enjoy the synergistic effect of collective wisdom through the exchange of ideas and information. Consequently, the capability to generate better ideas will enable the firm to create and maintain long-run sustainable competitive advantage (Lin, 2007a) of the firms as it facilitates the generation of new and better ideas, processes, products and services. Hence, knowledge sharing acts as a mechanism that drives the formation of new knowledge and refinement of old knowledge, as well as synthesis of more knowledge in the future. Knowledge sharing is confirmed leading to improvement in innovation capability (Lin, 2007a), better performance in business process enhancement and better product and service offering to customers.

There are a number of factors influencing knowledge sharing behavior of employees. From the literature review of knowledge management and knowledge sharing domain, these could be classified into individual and organizational factors. The former refers to employee motivation, information ownership, benefits and ethics etc. The latter refers to organizational culture, HRM practices, and leadership etc. However, not all HRM practices enhance knowledge sharing; wrong HRM practices can be harmful to knowledge sharing behavior (Currie and Kerrin, 2003). Thus, it is important to choose the appropriate HRM practices that facilitate knowledge sharing among employees in a particular organization. There are certain HRM practices that are found to be effective in encouraging knowledge sharing behavior, e.g. staffing, training and development, performance appraisal and compensation (Cabrera and Cabrera, 2005).

A firm can successfully promote a knowledge sharing culture not only by directly incorporating knowledge in its business strategy, but also by changing employee attitudes and behaviors to promote willing and consistent knowledge sharing (Connelly and Kelloway, 2003; Lin and Lee, 2004). Moreover, various studies focused on the relationship between knowledge sharing enablers and processes (Van

den Hooff and Van Weenen, 2004a; Van den Hooff and VanWeenen, 2004 b; Bock et al., 2005; Yeh et al., 2006), while others have focused on the relationship between knowledge sharing enablers and innovation performance (Calantone et al., 2002; Syed-Ikhsan and Rowland, 2004). However, researchers and practitioners have not tried an integrative model that explores the effectiveness of knowledge sharing from a holistic perspective, and little empirical research has examined the relationships among knowledge sharing enablers, processes, and firm innovation capability. For an organization, knowledge sharing is capturing, organizing, reusing, and transferring experience-based knowledge that resides within the organization and making that knowledge available to others in the business. A number of studies have demonstrated that knowledge sharing is essential because it enables organizations to enhance innovation performance and reduce redundant learning efforts (Calantone et al., 2002; Scarbrough, 2003).

To summarize, there is a lack of understanding of HRM practices that encourage or discourage the knowledge sharing behavior of employees. Also, the relationship between knowledge sharing behavior and Innovation capability is less explored in previous studies. So, the objective of the study was to examine the impact of HRM practices on knowledge sharing behavior and also to examine the influence of Knowledge sharing behavior on Innovation capability of the organization.

Need of the Study

Chee-Yang Fong, Keng-Boon Ooi under took a study titled "HRM practices and knowledge sharing: an empirical study." In his study, the authors investigated the association between human resource management (HRM) practices and knowledge sharing. Hall [2001], Smith and Farquhar [2000]; Prusak [1999], Boisot and Griffiths [1999] expressed that Identification of factors that motivate employees to share knowledge for the benefit of other employees and the underlying antecedents of knowledge sharing, with an intention to add value to the practitioners of knowledge sharing was examined. Minu Ipe undertook a study titled "Knowledge Sharing in Organizations: A Conceptual Framework." In this study, *knowledge sharing at the most basic level; between individuals in organizations, was highlighted.* Bock et al. (2005) had discussed three motivating factors viz., individual benefits, group benefits, and organizational benefits that have influence on

individual's knowledge sharing practices. Bock and Kim (2005) identified three decisive factors viz., subjective norms, attitude, and organizational climate in knowledge sharing. This research has been aimed to find out the impact of knowledge sharing factors on university innovation capability.

From the literature review, it is observed that the concept of 'Innovation' has been less explored in the field of hospitals. So, an attempt has been made to gain deeper understanding on the significance of Innovation capability in the organization and how the same is being influenced by Knowledge sharing behavior of employees. On other words, it is vital for Hospitals to examine whether the knowledge sharing behavior of each employee enable or support the organization in enhancing its ability that drives innovation.

Research Objectives

- To examine the influence of HRM Practices on Knowledge Sharing Behavior of Nurses in Hospitals,
- To examine the association between Knowledge Sharing Behavior of Nurses and Innovation Capability of Hospitals, and
- To test and validate the proposed research model.

Review of Literature

Recruitment and selection

In organizations, recruitment and selection are two activities of the staffing function of HRM carried out to acquire the right quantity and quality of employees. The recruiting firm generally will try to match the knowledge, skills and attitudes (KSAs) of the candidate, to the specifications and requirements of the job or position (Chatman, 1991). The recruiter will communicate to the potential candidates the job description and job specification of the position offered to attract applications from qualified candidates. In addition, recruiters will ensure that there is person-organization (P-O) fit between the candidate and the firm, where the value, beliefs and characteristics of the candidate are in line with the organizational environment and culture of the firm (Chatman, 1991). Once the new employee's P-O fit is consistent with the new working relationship and environment, high individual and team work performance is expected which, in turn, will lead to better overall firm performance (Goodman and Svyantek, 1999). The closer the

P-O fit, the quicker it is for the new staff to blend well with the new working environment, thus encouraging the interchange of knowledge among old and new members of a company (Chatman, 1991), which increases a firm's competitive edge. In an organization that treasures knowledge sharing, P-O fit is significant because the original value and characteristics of the new recruit should embrace knowledge sharing too, in order to strengthen the dominant culture of knowledge sharing focused in the firm. A case study by Currie and Kerrin (2003) shows the consequence of an inaccurate selection process in enhancing the complexity of sharing knowledge among staff from different functional units. Since selection of the right candidate, who has the common perception of knowledge sharing, is of high priority, the recruitment methods deployed should enable the firm to attract those with knowledge sharing inclination, e.g. recruitment process will look for positive and outward looking employees who are willing to contribute to the collective goals of the organization. The selection methods, tools and testing methods used during the selection process, e.g. interview, background check, etc. should be carefully designed to ensure validity and reliability in selecting the pro-knowledge sharing employee. In this regard, recruitment and selection are anticipated to be associated with knowledge sharing.

Compensation and reward

According to motivation theories (Robbins and DeCenzo, 2008), compensation and reward reinforce the motivation for improved individual performance by employees. Employees are expected to repeat positive behavior in anticipation of rewards and recognition given by the firm. Thus, firms use compensation and rewards as the tools to elicit, enhance and maintain the desired knowledge sharing behavior of employees. From the compensation and reward programs implemented by firms, it is found that compensation and incentives are important practices in relation to knowledge sharing (Zarraga and Bonache, 2003). With the right reward system installed, employees within a firm will be prompted to share knowledge with one another (Ooi et al., 2009). Unfortunately, fewer firms have done a good job in administering an appropriate compensation system for employees, to produce favorable organizational behaviors. Indeed, most compensation systems installed in firms focus on individual performance. There are some studies showing that individuals' reward could restrain the sharing of information among the company staff, reducing

the occurrence of knowledge transfer in the organization (Quinn et al., 1996). This diverts the focus of employees from collective or organizational performance as a whole, causing strong conflict between these narrow focused practices and knowledge sharing programs on communication, collaboration and innovation. Employees are reluctant to share knowledge and "silos of knowledge" are formed (Goh, 2002), where employees keep their knowledge as a weapon to compete with peers in term of work performance. Clearly, this phenomenon works against knowledge sharing practices in a firm. The company should rather establish a different form of compensation system, which focuses on group-based compensation, in order to stimulate knowledge exchange and sharing within group members in an organization (Yahya and Goh, 2002).

Performance appraisal

Performance appraisal (PA) is defined as a formal system of review and evaluation of individual or team task performance (Mondy, 2010). An effective appraisal system evaluates accomplishments of work performance and the information gathered can be used for recruitment, training and development, compensation and internal employee relations (Mondy, 2010). Konovsky and Cropanzano (1991) have shown that when the employees in a company perceived that the performance appraisal is fair and just, the employees would have a positive perspective of the firm, and this would increase their commitment towards the firm. Jaw and Liu (2003) proposed that it is essential for firms to make known the results of the performance appraisal to the employees, and consequently enforce remedial actions for the underperforming employees. Thus, a performance appraisal system can serve as a positive pressure in stirring on employees to thrive for better performance, through greater knowledge sharing among themselves. Hence, it is important to study the effect of performance appraisal on knowledge sharing behavior.

Teamwork

As defined by Katzenbach and Smith (1993), a team comprises a small assembly of people, possessing different skills that complement one another, to attain a common goal in which the members hold themselves responsible. Teamwork occurs when group members work together closely to accomplish a purpose. As knowledge sharing is about communicating information and ideas from one employee to another, sharing of knowledge can be

encouraged through forming working teams in organizations. Furthermore, it was elaborated by Lim and Klein (2006) that cohesive teams consist of members with similar norms, representing ideas or beliefs about how members are expected to behave. In the context of knowledge sharing, cohesive teams with knowledge sharing value will consider knowledge sharing as a “code of conduct” of the team. This self-regulated behavior in the team enables the team members to share their knowledge with one another willingly. For sharing of knowledge to happen within a firm, according to Goh (2002), the firm’s working environment should comprise team members who are cooperative. Hence, it is essential for a firm to create and nurture an environment for sharing of knowledge to occur (Zarraga and Bonache, 2003). The researchers are confident that teamwork can be established through HRM practices which create an environment that encourages behaviors leading to trust and overtime, enhances knowledge sharing in the organization.

Training and development

According to Noe et al. (2008), training is described as a planned effort designed by the organization in assisting its employees in the learning process of job related competencies, such as knowledge, skills, or behaviors that are vital for the success of individual’s job performances. Whereas development refers to formal education, job experiences enhancement, assessment of personality and abilities that help employees prepare for the future (Noe et al., 2008). Training activities are proven to give positive effect on company performance (Valle et al., 2009). Training is important in the context of knowledge sharing as employees have an opportunity to exchange information and ideas during formal training sessions or informal interactions between two or more individuals (Ipe, 2003). Apart from formal training, informal training and learning is equally important in knowledge sharing, as described by Ramirez and Li (2009) that “external learning take place when employees communicate with supply chain.” Knowledge transfer could also occur via supplier when employees undergo training to use a new piece of equipment. The employees in turn will teach the customers, this is another example of teaching and knowledge sharing (Ramirez and Li, 2009). The bottom line is that training can help to overcome some constraints in knowledge sharing, such as learner’s lack of motivation, low absorption capacity and integration capability (Rhodes et al., 2008).

Knowledge Sharing Behavior

It is an activity through which knowledge (i.e., information, skills, or expertise) is exchanged among people, friends, families, communities (e.g., Wikipedia), or organizations. Organizations have recognized that knowledge constitutes a valuable intangible asset for creating and sustaining competitive advantages. Knowledge sharing activities are generally supported by knowledge management systems. However, technology constitutes only one of the many factors that affect the sharing of knowledge in organizations, such as organizational culture, trust, and incentives. The sharing of knowledge constitutes a major challenge in the field of knowledge management because some employees tend to resist sharing their knowledge with the rest of the organization. Broadly, sharing is the process where a resource is given by a source to a recipient. This understanding of the term ‘sharing’ has led, as Berends (2005) highlights, people to interpret knowledge sharing to be the “*transfer of knowledge from a source to a recipient.*” This definition can be construed in way were knowledge sharing is viewed as a one way process that leads to the benefit of one person. According to Chow et al. (2006), it is quite the opposite. They argue that knowledge “*appreciates in value when shared with others*” leading to both parties benefiting. The more people involved in this process the greater the value.

Innovation Capability

According to Schumpeter (1930), innovation is a new combination for the purpose and methods. Innovation will produce new qualitative product or process significantly different from the old. More literatures have shown a great interest in KS research within firms. One of the most important reasons may be that some kinds of close relationship exist between knowledge sharing and innovation (Song, Fan and Chen, 2008). Firms must be innovative in order to produce valuable products by using the relevant resources and keep competitiveness. As noted by Jantunen (2005), a positive knowledge sharing culture helps firms improve innovation capability.

Research Model

Through literature review it is clear and evident that there could be interrelationships between the dimensions of HRM practices, Knowledge sharing behavior and Innovation Capability. But, there is no empirical support to prove that

Knowledge sharing behavior has a significant and positive effect on Innovation capability. This research curiosity has led to the construction of following research model (figure 1) and its corresponding hypotheses.

H1. Recruitment and selection has significant positive association with knowledge sharing behavior.

H2. Compensation and reward has significant positive association with knowledge sharing behavior.

H3. Performance appraisal has significant positive association with knowledge sharing behavior.

H4. Teamwork has significant positive association with knowledge sharing behavior.

H5. Training and development has significant positive association with knowledge sharing behavior.

H6: Knowledge Sharing behaviour has a significant positive association with Innovation Capability.

Research methodology

This basically is an empirical study and as the name suggests it relies on experience or observation alone, and it can even be without due regard for system and theory (Kothari, 2004). This is basically a data-based research, which can give conclusions based on observation. As far as the approach is concerned, it is both qualitative as well as quantitative in nature. Literature pertaining to HRM practices, Knowledge sharing behaviour and Innovation Capability have been studied to understand the relevance of each one of them, and also, to study their antecedents and consequences of the same and used in the formulation of the working hypothesis.

Respondents

The respondents are employees who are working in four private hospitals in a particular district of Tamil Nadu. The workforce comprises over 750 professional Nurses who render services to patients in the respective hospitals. The sample size of the study is 175 employees. Disproportionate simple random sampling was adopted. Pilot study was undertaken with a sample of 40 random employees so that necessary modifications can be incorporated to enhance the quality of survey instrument. The reliability and convergent validity of the instrument have been verified. Finally, the metric in the form of a self-administered questionnaire with 5-point Likert scale was distributed to

250 employees (response rate 70%), who are basically employees working in the cadre of Nurses, to collect data.

Procedure

With the support of HR Manager, the respondents were contacted during their free timings and the objective as well as the importance of the research was explained, and also, it was ensured that there would be no bias in their response. Several visits were made to the Hospitals until the desired sample size was obtained.

Questionnaire

The questionnaire consists of two parts, namely Part I and Part II. The part I contained 9 questions on Demographic factors of users such as name, age, gender, Marital status, educational qualifications, experience, department, designation and annual income. Part- II consists of the conceptual factors such as Recruitment and Selection with 5 questions, Compensation and Reward with 4 questions, Performance Appraisal with 3 questions, Team Work with 2 questions, Training and Development with 2 questions, Knowledge Sharing with 7 questions and Innovation Capability with 6 questions. The scaling values are 1- Strongly Agree; 2- Agree; 3- Neutral; 4- Disagree; 5- Strongly Disagree.

Sample Characteristics

Out of 175 respondents, 78 percent of the nurses were Females. 38 percent of the nurses were between the age group of 21-30 years. 57 percent of the nurses were married. 44 percent of nurses were diploma holders. About 53 percent of nurses were in cadre of Executive or Staff Nurses. 34 percent of Nurses were working in Both Clinical and Technical department. About 72 percent of Nurses were drawing a monthly salary ranging from Rs. 10000 to 20000.

Data Analysis

Reliability and Validity

The study has employed 'Cronbach alpha coefficient' for assessing the reliability of the scale. According to Nunnally (1978), Cronbach alpha level of 0.60 or above is considered to be acceptable for construct. Also, Convergent validity of all the constructs was examined using the measure of Average Variance Extracted (AVE), that is the average variance shared between a construct and its items (Fornell & Larcker, 1981). Chin et al. (1999 & 2003) indicated that a

construct with an AVE of over 0.5 is expected to have adequate convergent validity.

Table 1 presents that all the constructs namely Recruitment and Selection, Compensation and Reward, Performance Appraisal, Team Work, Training and Development, Knowledge Sharing behaviour and Innovation Capability exhibit adequate reliability with internal consistency values of 0.96, 0.85, 0.86, 0.73, 0.74, 0.82, 0.79 respectively, which is greater than recommended alpha value of 0.60. Also, the AVE of each construct was over 0.40 which satisfies the standard values.

Model Validation

In order to test the proposed Hypothesis, this study employed a construct level Correlation analysis as an initial verification. Visual PLS is used to compute the constructs scores. Using these constructs scores as a base, the study explored the relationship between the variables using SPSS package 21.0. The construct correlation has been presented in the table 2.

The correlation table indicates that there exists a positive relationship between HRM practices and Knowledge sharing behaviour except Recruitment and Selection which is negatively correlated to Knowledge sharing behavior with the R value of -0.238. Also it was found to be positive correlation between Knowledge sharing behaviour and Innovation capability with R value of 0.438. Staples et al. (1998) indicated that though the bivariate correlation are significant between the construct, it is still required to assess the path coefficient in the structural model as a causal effect. (Efron 1979, and Efron and Gond, 1983 expressed that in order to ensure that path coefficients are statistically significant, this study has employed a bootstrap and jack knife re-sampling procedures to estimate standard errors for calculating values using visual PLS. The results are examined and the t-statistic value at the 0.05 level is 1.96. If the t-statistic value is greater than 1.96, the path is considered to be significant.

As presented in figure 2 and table 3, the path linking Recruitment and Selection to Knowledge Sharing was found to be Significant at 0.05 level (beta= -0.168, t= -2.3059), indicating Recruitment and Selection has significant effect on knowledge sharing behaviour. This provided support for H1.

The path linking Compensation and Reward to Knowledge Sharing was significant at 0.05 level (beta=0.232, t= 2.7452), indicating Compensation and Reward has a significant effect on knowledge sharing behaviour. This provided support for H2.

The path linking Performance Appraisal to Knowledge Sharing was found to be significant at 0.05 level (beta=0.325, t= 2.8037), indicating Performance Appraisal has a significant effect on knowledge sharing behaviour. This provided support for H3.

The path linking Team Work to Knowledge Sharing was Insignificant at 0.05 level (beta=0.19, t= 1.4125), indicating Team Work has no significant effect on knowledge sharing behaviour. This provided no support for H4.

The path linking Training and Development to Knowledge Sharing was found to be insignificant at 0.05 level (beta= -0.301, t= -1.5711), indicating Training and Development has no significant effect on knowledge sharing behaviour. This provided no support for H5.

The path linking Knowledge Sharing behaviour to Innovation Capability was significant at 0.05 level (beta=0.438, t= 6.2386), indicating Knowledge Sharing has significant effect on Innovation Capability. This provides support for H6.

Collectively, HRM practices explained about **38 percent** of the variance in the knowledge sharing behaviour of employees. In addition, the knowledge sharing behaviour explained a variation of **19 percent** in Innovation Capability.

Discussion

Knowledge Sharing Behavior

It is theorized that Knowledge Sharing Behavior are to be predicted by HRM Practices viz., Recruitment and Selection, Compensation and Reward, Performance Appraisal, Team Work and Training and Development. In other words, it can be understood that HRM practices adopted by the organization significantly predicts Knowledge sharing behavior of employees.

The overall results of the structural model analysis revealed that three out of five HRM practices (Recruitment and Selection, Compensation and Reward, and Performance Appraisal) acted as significant predictors in Knowledge sharing behavior among nurses (with the exception of Team work and Training and Development).

From the analysis, it is revealed that Recruitment and Selection had a significant effect on Knowledge sharing behaviour. This finding is consistent with the findings of Cabrera and Cabrera (2005). It implies that the right selection of employees with adequate qualifications and traits will enable the hospitals in developing the effective knowledge base and in promoting sound knowledge sharing culture among nurses.

From the results, it was determined that Compensation and Reward had a significant effect on Knowledge sharing behaviour. This finding is in consistency with the findings of Lin (2007b). It reveals that the compensation and reward policy adopted by hospitals creates considerable value to the employees i.e. nurses. And it is realized that there is enough organizational support for knowledge sharing.

It is further identified that Performance Appraisal had significant effect on Knowledge sharing behaviour. This finding implies that performance appraisal serves as motivator and enabler for the hospitals in enhancing the knowledge sharing behaviour of nurses. This findings also necessitates the significance of including Knowledge sharing as one of the parameter to measure the performance of employees. It also shows that if the mechanism of performance appraisal is administered properly, it will result in better knowledge sharing.

On other hand, Team work did not have impact on Knowledge sharing behavior. This finding implies that the knowledge sharing processes of one team member are not supported by another member. This may be due to absence of strong incentives to individuals who in turn will have to support their team members by way of sharing knowledge across all departments. The results also show that the need for collaborative culture which is the base for knowledge exchange is not properly recognized by the employees.

Training and Development are found to be insignificant and does not contribute towards Knowledge sharing behavior. This is not in line with the results of Ramirez and Li (2009). It is evident that training and development provided by hospitals does not create a platform for nurses to capture and share knowledge. It is also clear that the training needs of nurses have not been fully met by the Hospitals.

Innovation Capability

In this study, it is hypothesized that Innovation Capability of an organization is to be determined by Knowledge Sharing

behavior of employees. It implies that Knowledge sharing behaviour is the significant predictor of Innovation capability. From the analysis, it is found that Knowledge sharing behavior had a significant effect on Innovation capability. This finding coincides with the findings of Calantone et al. (2002) and Scarbrough (2003). This finding reveals that knowledge sharing behaviour of nurses facilitate the hospital management to innovate new ideas with regard to policy, process, procedure, and practices. It can be seen as a good indicator for the growth and development of the hospitals. Also, it is guaranteed that the innovation capability possessed by the hospitals will keep them to be competitive and sustainable and unique in the prevailing competitive scenario.

Research Limitations and Future Research

There are few limitations to this research study. First, the research setting for the current study was hospitals in a particular district. Respondents were limited to nurses working in both day and night shift. As such, the study may limit the extent to which respondent behaviours can be generalized to the general work force. The results of this study can be regarded as being representative of the perceptions of the general knowledge work force. To further increase the generalizability however, future research should replicate the study's findings with larger samples and in different contexts. Second, the study focuses on few HRM practices that influence knowledge sharing behaviours of knowledge workers. From the analysis, only the portion of variance has been shown by independent variables on the dependent variable. It means that there may be other factors on HRM which are hidden but may have significant influence on knowledge sharing behaviours. Future research should focus on other HRM practices. Finally, the study's findings are based on the modest sample size of 175 respondents. Although PLS Graph can handle small sample sizes and generates valid results, a larger sample with more statistical power would have permitted to use other covariance based structural equation modelling tools such as LISREL. Future research should verify the findings of this research study using covariance based tools.

Implication for Practice

The study has highlighted the importance of HRM practices in Hospitals and its corresponding impact on the Knowledge sharing behavior of Nurse. The HRM practices are Recruitment and Selection, Compensation and Reward, and Performance Appraisal. It will enable the Hospital

organization to pay special focus on these three HRM practices which are important in predicting knowledge sharing behavior.

In addition, this paper has put forward some valuable insights to guide Nurses who are in practice, to identify problems in their respective areas and will help them in getting rid of the same by taking self-corrective actions.

The results have revealed that team work does not contribute towards knowledge sharing behavior. Since this may be due to the absence of individual incentives as already discussed, the management of hospitals may be recommended to review and frame appropriate incentive plan for individuals so as to enable them to share knowledge among their team members.

The results have also indicated that training and development is not a significant predictor of knowledge sharing behavior of nurses. So, it is recommended that the management should attempt to organize the training and development programs carefully and continuously in accordance with the realization of training needs of the individuals. Well-designed training and development program can help to improve the knowledge sharing behaviour among managers.

Moreover, HRM practices such as recruitment and selection, Compensation and Reward, and Performance Appraisal should always be applied by Hospital Management as significant parameters for Quality Measurement and Enhancement, in which knowledge sharing culture can be nurtured.

Conclusion

In conclusion, the purpose of this study is to investigate the associations between the practices of HRM, knowledge sharing behavior, and innovation capability among nurses in Hospitals. A sample of 175 nurses was drawn from four leading hospitals in a district. A model is developed and tested using structured modelling approach. The empirical findings have revealed that HRM practices are associated with knowledge sharing behavior. Besides, Recruitment and Selection, Compensation and Reward, and Performance Appraisal have a positive impact on the Nurse's Knowledge sharing behaviour. Among the HRM practices, Compensation and Reward and Performance Appraisal are perceived to be dominant HRM practices and both are significantly related to Knowledge sharing behaviour of Nurses. Also,

the findings have demonstrated that the knowledge sharing behaviour of Nurses is closely linked to Innovation capability of hospitals. It is concluded that when there are healthy HRM practices in Hospitals, it will encourage Nurses to share the knowledge. When there is effective knowledge sharing culture among Nurses, it will result in the development of innovation capability in Hospitals.

References

- Alavi, M. and D. Leidner (1999). "Knowledge management systems: emerging views and practices from the field," Proceedings of the 32nd Hawaii International Conference On System Science, Maui, HI, January 4-8.
- Boxall, P. and J. Purcell (2000). "Strategic human resource management: where have we come from and where should we be going?." *International Journal of Management Reviews*, Vol. 2 No. 2, pp. 183-203.
- Bock, G.W., R. W. Zmud, and Y.G. Kim, (2005). "Behavioral intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate." *MIS Quarterly*, Vol. 29 No. 1, pp. 87-111.
- Currie, G. and M. Kerrin (2003). "Human resource management and knowledge management: enhancing knowledge sharing in a pharmaceutical company." *The International Journal of Human Resource Management*, Vol. 14 No. 6, pp. 1027-45.
- Cabrera, E.F. and A. Cabrera, (2005). "Fostering knowledge sharing through people management practices", *International Journal of Human Resource Management*, Vol. 16 No. 5, pp. 270-95.
- Connelly, C.E. and E.K. Kelloway (2003). "Predictors of employees' perceptions of knowledge sharing cultures." *Leadership & Organization Development Journal*, 24(5), 294-301.
- Calantone, R.J., S.T. Cavusgil, and Y. Zhao (2002). "Learning orientation, firm innovation capability, and firm performance." *Industrial Marketing Management*, Vol. 31 No. 6, pp. 515-24.
- Chatman, J.A. (1991). "Matching people and organization: selection and socialization in public accounting firms." *Administrative Science Quarterly*, Vol. 36 No. 3, pp. 459-84.

- Davenport, T.H. and S.C. Volpel (2001). "The rise of knowledge towards attention management." *Journal of Knowledge Management*, Vol. 5 No. 3, pp. 212-22.
- Fotopoulos, C.B. and E.L. Psomas (2009). "The impact of soft and hard TQM elements on quality management results." *International Journal of Quality & Reliability Management*, Vol. 26 No. 2, pp. 150-63.
- Goodman, S.A. and D. J. Svyantek (1999). "Person-organization fit and contextual performance: do shared values matter?." *Journal of Vocational Behavior*, Vol. 55 No. 2, pp. 254-75.
- Hsu, S. and Shen, H. (2005). "Knowledge management and its relationship with TQM." *Total Quality Management & Business Excellence*, Vol. 16 No. 3, pp. 351-61.
- Ipe, M. (2003). "Knowledge sharing in organizations: a conceptual framework." *Human Resource Development Review*, Vol. 2 No. 4, pp. 337-59.
- Jantunen, A. (2005). Knowledge-processing capabilities and innovative performance: an empirical study, *European Journal of Innovation Management*, 8 (3), 336-349.
- Jaw, B.S. and W. Liu (2003). "Promoting organizational learning and self-renewal in Taiwanese companies: the role of HRM." *Human Resource Management*, Vol. 42 No. 3, pp. 223-41.
- Koskinen, K.U., P. Pihlanto, and H. Vanharanta, (2003). "Tacit knowledge acquisition and sharing in a project work context." *International Journal of Project Management*, Vol. 21 No. 4, pp. 281-90.
- Konovsky, M.A. and R. Cropanzano (1991). "Perceived fairness of employee drug testing as a predictor of employee attitudes and job performance." *Journal of Applied Psychology*, Vol. 76 No. 5, pp. 698-707.
- Katzenbach, J.R. and D. K. Smith, (1993). "The discipline of teams." *Harvard Business Review*, Vol. 71 No. 2, pp. 111-20
- Lin, H.F. (2007a). "Knowledge sharing and firm innovation capability: an empirical study." *International Journal of Manpower*, Vol. 28 Nos 3/4, pp. 315-32.
- Lin, H.F. and G.G. Lee (2004). "Perceptions of senior managers toward knowledge sharing behaviour." *Management Decision*, Vol. 42 No. 1, pp. 108-25.
- Lim, B.C. and K. J. Klein (2006). "Team mental models and team performance: a field study of the effects of team mental model similarity and accuracy." *Journal of Organizational Behavior*, Vol. 27 No. 4, pp. 403-18.
- Mondy, R.W. (2010). *Human Resource Management*, 11th ed., Pearson/Prentice Hall, Upper Saddle River, NJ.
- M.A.S. and A. Rodriguez-Duarte (2009). "The effects of training on performance in service companies: a data panel study." *International Journal of Manpower*, Vol. 30 No. 4, pp. 393-407.
- Noe, R.A., J. R. Hollenbeck, B. Gerhart, and Wright, P.M. (2008), *Human Resource Management – Gaining a Competitive Advantage*, 6th ed., McGraw-Hill, New York, NY.
- Ooi, K.B., P.L. Teh, and A.Y.L. Chong, (2009), "Developing an integrated model of TQM and HRM on KM activities." *Management Research News*, Vol. 32 No. 5, pp. 477-90.
- Pfeffer, J. (1998). *The Human Equation*, Harvard Business School Press, Boston, MA, Ch. 3.
- Quinn, J.B., P. Anderson, and S. Filkenstein, (1996), "Managing professional intellect: making the most of the best", *Harvard Business Review*, Vol. 74 No. 2, pp. 71-80.
- Ramirez, M. and X. Li, (2009). "Learning and sharing in a Chinese high-technology cluster: a study of inter-firm and intra-firm knowledge flows between R&D employees." *New Technology, Work and Employment*, Vol. 24 No. 3, pp. 277-96.
- Rhodes, J., P. Lok, R.Y.Y. Hung, and S.C. Fang, (2008). "An integration model of organizational learning and social capital on effective knowledge transfer and perceived organizational performance." *Journal of Workplace Learning*, Vol. 20 No. 4, pp. 245-58.
- Robbins, S.P. and De D.A. Cenzo (2008), *Fundamentals of Management: Essential Concepts and Applications*, 6th ed., Pearson Prentice Hall, Upper Saddle River, NJ.
- Sit, W.Y., K. B. Ooi, B. Lin, and A. Y. L. Chong (2009). "TQM and customer satisfaction in Malaysia's service sector." *Industrial Management & Data Systems*, Vol. 109 No. 7, pp. 957-75.

Schumpeter, Joseph A. (1930). Mitchell’s Business Cycles. *Quarterly Journal of Economics*,45(1), November, 150-72.

Song, Z., L. Fan, and S. Chen (2008). Knowledge sharing and innovation capability: Does absorptive capacity function as a mediator?. *International Conference on Management Science and Engineering*.

Stone, R.J. (2009). *Managing Human Resources: An Asian Perspective*, 1st ed., John Wiley & Sons, Milton.

Storey, J. (1995), *Human Resource Management: A Critical Text*, 2nd ed., Routledge, New York, NY.

Syed-Ikhsan, S.O. and F. Rowland (2004), “Knowledge management in a public organization: a study on the relationship between organizational elements and the performance of knowledge transfer.” *Journal of Knowledge Management*, Vol. 8 No. 2, pp. 95-111.

Scarbrough, H. (2003). “Knowledge management, HRM and innovation process.” *International Journal of Manpower*, Vol. 24 No. 5, pp. 501-16.

Van den Hooff, B. and F.D.L. Van Weenen (2004a). “Committed to share: commitment and CMC use as antecedents of knowledge sharing” *Knowledge and Process Management*, Vol. 11 No. 1, pp. 13-24.

Van den Hooff, B. and F.D.L. Van Weenen (2004b). “Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge sharing” *Journal of Knowledge Management*, Vol. 8 No. 6, pp. 117-30. Valle, I.D., Castillo.

Yeh, Y.J., S.Q. Lai, and C.T. Ho (2006). “Knowledge management enablers: a case study” *Industrial Management & Data Systems*, Vol. 106 No. 6, pp. 793-810.

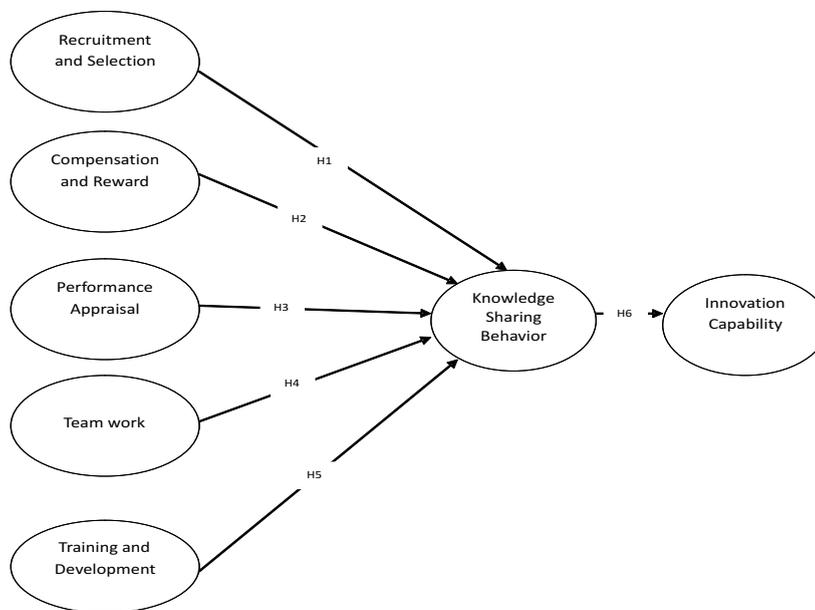
Yang, J.T. (2004). “Job-related knowledge sharing: comparative case studies.” *Journal of Knowledge Management*, Vol. 8 No. 3, pp. 118-26.

Yahya, S. and W. K. Goh, (2002), “Managing human resources toward achieving knowledge emanagement.” *Journal of Knowledge Management*, Vol. 6 No. 5, pp. 457-68.

Zarraga, C. and J. Bonache (2003), “Assessing the team environment for knowledge sharing: an empirical analysis.” *The International Journal of Human Resource Management*, Vol. 14 No. 7, pp. 1227-45.

GRAPH AND TABLES

Graph 1. Proposed Research Model



Graph 2. Structural Equation Results of Model

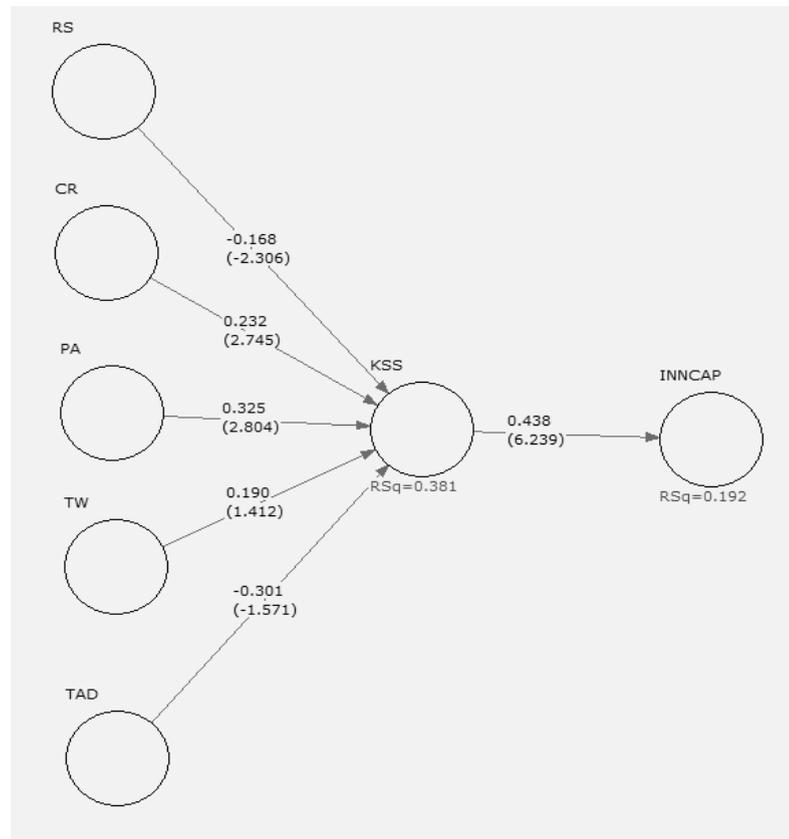


Table 1. Reliability and Validity

Dimensions	No. of items	Cronbach's Alpha value	AVE value
Recruitment and selection	5	0.96	0.53
Compensation and Reward	4	0.85	0.56
Performance Appraisal	3	0.86	0.65
Team Work	2	0.73	0.57
Training and Development	2	0.74	0.53
Knowledge Sharing Behavior	7	0.82	0.53
Innovation Capability	6	0.79	0.58
Total Items	29		

Table 2. Construct Level Correlation of Model

Hypothesis	Independent variables	Dependent Variables	Pearson's Correlation	Significance level at 1 %
H1	Recruitment and Selection	Knowledge sharing Behavior	-0.238	0.000
H2	Compensation and Reward		0.321	0.000
H3	Performance Appraisal		0.309	0.000
H4	Team Work		0.236	0.000
H5	Training and Development		0.402	0.000
H6	Knowledge Sharing Behavior	Innovation Capability	0.438	0.000

Table 3: Bootstrap Summary of Model and Hypothesis Result

Hypothesis	Entire sample estimate	Mean of sub sample	Standard error	t-Statistic	R square value	Result
H1	-0.168	-0.2053	0.0729	-2.3059	0.381	Significant
H2	0.232	0.2296	0.0845	2.7452		Significant
H3	0.325	0.2037	0.1159	2.8037		Significant
H4	0.19	0.2334	0.1345	1.4125		Insignificant
H5	-0.301	-0.2979	0.1916	-1.5711		Insignificant
H6	0.438	0.4571	0.0702	6.2386	0.192	Significant

SCMS JOURNAL OF INDIAN MANAGEMENT

Aims and Scope

The *SCMS Journal of Indian Management* is a **blind peer-reviewed Journal**. The Journal deems it its mission to submit to the readers fresh fruit of management thoughts and rich cream of current innovative research. The format of the Journal is designed reader-friendly. The academia and the corporates have an easy access to the Journal.

The Journal looks for articles conceptually sound, at once methodologically rigorous. The Journal loves to deal knowledge in management theory and practice individually and in unison. We wish our effort would bear fruit. We hope the Journal will have a long life in the shelves catering to the needs of b-students and b-faculty.

- § Proposals for articles that demonstrate clear and bold thinking, fresh and useful ideas, accessible and jargon-free expression, and unambiguous authority are invited. The following may be noted while articles are prepared.
- § What is the central message of the article you propose to write? Moreover, what is new, useful, counterintuitive, or important about your idea?
- § What are the real-world implications of the proposed article? Can the central message be applied in businesses today, and if so, how?
- § Who is the audience for your article? Why should a busy manager stop and read it?
- § What kind of research have you conducted to support the argument or logic in your article?
- § What academic, professional, or personal experience will you draw on to make the argument convincing? In other words, what is the source of your authority?
- § The manuscript of reasonable length shall be sent to the Editor—*SCMS Journal of India Management* (Both for postal and electronic submission details are given here under).

The manuscript should accompany the following separately:

- § An abstract (about 100 words), a brief biographical sketch of above 100 words for authors describing designation, affiliation, specialization, number of books and articles published in the referee journals, membership on editorial boards and companies etc.
- § The declaration to the effect that the work is original and it has not been published earlier shall be sent.
- § Tables, charts and graphs should be typed in separate sheets. They should be numbered as Table 1, Graph 1 etc.
- § References used should be listed at the end of the text.
- § Editors reserve the right to modify and improve the manuscripts to meet the Journal's standards of presentation and style.
- § Editors have full right to accept or reject an article for publication. Editorial decisions will be communicated with in a period of four weeks of the receipt of the manuscripts.
- § All footnotes will be appended at the end of the article as a separate page. The typo script should use smaller size fonts.

Address for Submission

Electronic Submission : E-mail: editor@scmsgroup.org
The electronic submission must be in the form of an attachment with a covering letter to be sent as e-mail

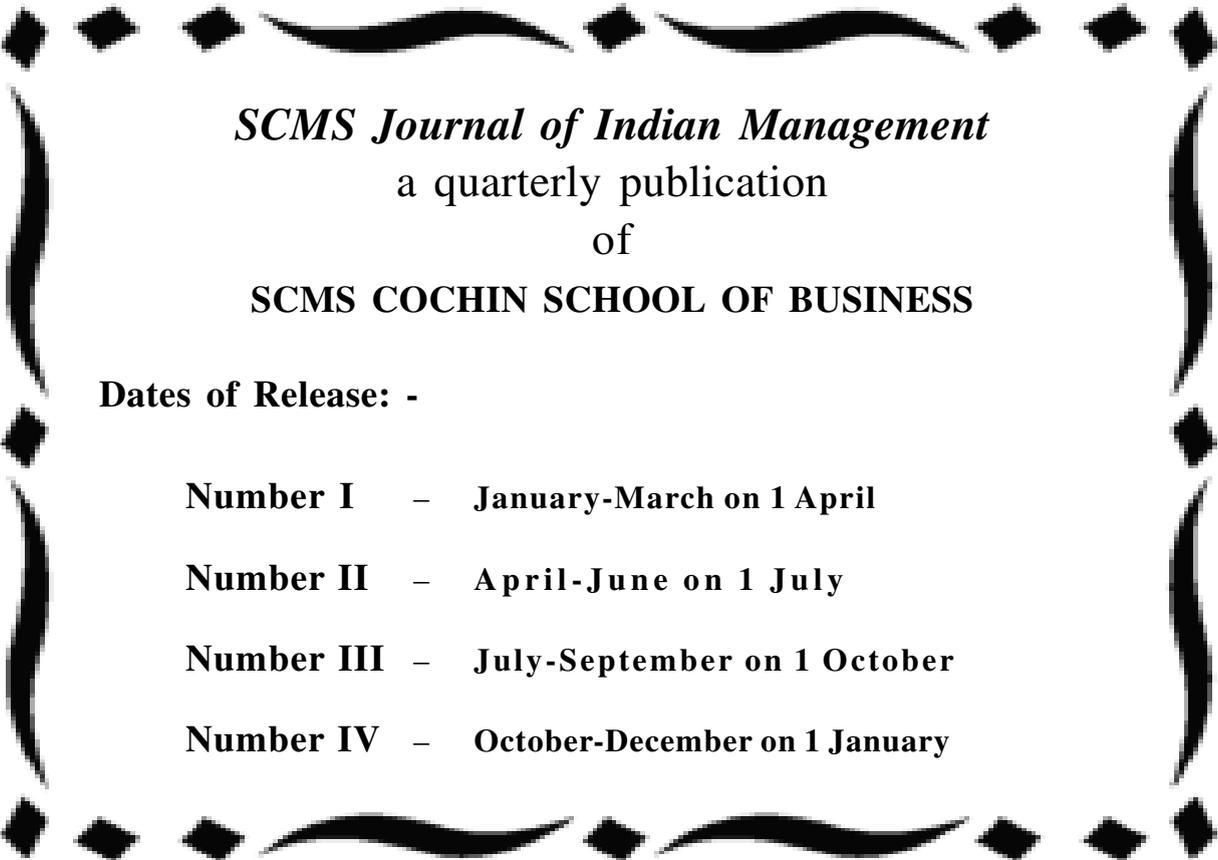
Post Submission : The Editor
SCMS Journal of Indian Management,
SCMS New Campus, Prathap Nagar, Muttom,
Aluva – 683106, Kochi, Kerala, India
Ph : +91 484 2623803, 2623804, 2623885, 2623887
Fax : +91 484 2623855

CERTIFICATE OF REGISTRATION

Title of Newspaper	:	SCMS JOURNAL OF INDIAN MANAGEMENT
Language (in which it is to be published)	:	English
Registration Number	:	KERENG/2009/32718
Periodicity of the publication and the day on which it is published	:	Quarterly 1 January, 1 April, 1 July, and 1 October
Retailing Selling price of the Journal	:	₹ 1000/- (One Year Subscription)
Publisher's Name	:	Dr. D. Radhakrishnan Nair
Nationality	:	Indian
Address	:	25/74, Ambady, Kothamangalam-686691, Ernakulam.
Place of publication (with complete Postal address)	:	Prathap Nagar, Muttom, Aluva-683106, Ernakulam District, Kerala.
Printer's Name	:	Dr. D. Radhakrishnan Nair
Nationality	:	Indian
Address	:	25/74, Ambady, Kothamangalam-686691, Ernakulam.
Name of the Printing Press (with complete address where printing is to be conducted)	:	Maptho Printings, Kalamassery, Cochin-683104
Editor's Name	:	Dr. D. Radhakrishnan Nair
Nationality	:	Indian
Address	:	25/74, Ambady, Kothamangalam-686691, Ernakulam.
Owner's Name	:	SCMS COCHIN SCHOOL OF BUSINESS
Place	:	Prathap Nagar, Muttom.

SCMS Journal of Indian Management
SCMS COCHIN SCHOOL OF BUSINESS

SCMS New Campus, Prathap Nagar
Muttom, Aluva-683 106, Kochi, Kerala, India
Ph: 91-484-262 3803 / 262 3804 / 262 3885 / 262 3887 Fax: 91-484-262 3855
E-mail: editor@scmsgroup.org
Website: www.scms.edu.in/jim



SCMS Journal of Indian Management
a quarterly publication
of
SCMS COCHIN SCHOOL OF BUSINESS

Dates of Release: -

- Number I – January-March on 1 April**
Number II – April-June on 1 July
Number III – July-September on 1 October
Number IV – October-December on 1 January

© SCMS Journal of Indian Management, SCMS New Campus, Prathap Nagar, Muttom, Aluva-683106, Kochi, Kerala, India
Ph: 91-484-262 3803 / 262 3804 / 262 3885 / 262 3887 Fax: 91-484-262 3855, Website: www.scms.edu.in
E-mail: editor@scmsgroup.org Journal Website : www.scms.edu.in/jim

All rights reserved. No part of this publication may be reproduced in any form without the written consent of the publisher. School of Communication and Management Studies and SCMS Journal of Indian Management assume no responsibility for the views expressed or information furnished by the authors. Edited and published by the Editor for and on behalf of SCMS and printed at Maptho Printings, Cochin-683104.

SCMS Journal of Indian Management

Subscription / Advertisement Form

Name :
Address :

City :
Zip Code :
Country :
E-mail :
Phone :
Draft Number :

(in favour of "SCMS Payable at Cochin")

Subscription Rates	1 Year	2 Years	Per Issue
Companies/Academic Institutes:	1000 (\$60)	1800 (\$100)	250 (\$15)
Individual	800	1500	200

Advertisement Rate

Outside back cover : ₹ 30,000 in colour, ₹ 15,000 in black and white
Inside front cover : ₹ 17,500 in colour, ₹ 10,000 in black and white
Inside back cover : ₹ 15,000 in colour, ₹ 6,000 in black and white
Inner full-page : ₹ 7500 in colour, ₹ 4,000 in black and white
Inner half-page : ₹ 5000 in colour, ₹ 3,000 in black and white

Contact:

Editor, SCMS Journal of Indian Management, Prathap Nagar, Muttom,
Aluva - 683106, Ernakulam, Kerala, India.
Phone: 91-484-262 3803 / 262 3804 / 262 3885 / 262 3887 Fax: 91-484-262 3855
E-mail: editor@scmsgroup.org, Journal Website: <www.scms.edu.in/jim>



SCMS COCHIN SCHOOL OF BUSINESS [Night View]

PGDM OF SCMS COCHIN SCHOOL OF BUSINESS

**ACBSP (US)
ACCREDITED
B. SCHOOL**

**SCMS COCHIN
SCHOOL OF BUSINESS**

**-The first
accredited, AIU
recognized and
ISO certified
business school in
Southern India**

- ◆ Recognized as equivalent to MBA by the Association of Indian Universities (AIU).
- ◆ Centrally air-conditioned world-class campus, an excellent team of 56 full time faculty, well-stocked library, full-fledged computer centre, superior teaching aids etc.
- ◆ Academic tie-ups with Foreign Universities to give the programme global focus and innovation. Nine faculty members from the universities of USA, Australia & Switzerland teaching full course at SCMS Cochin School of Business
- ◆ Dewang Mehta National Award for excellence in leadership training systems
- ◆ Impact Marketing National Award for integration of exceptional communication skill development system
- ◆ The only recipient of a grant for track record in performance from AICTE
- ◆ Ranking within the first 25 B.Schools in the A++ category
- ◆ Only B.School which has a University approved Research Centre for PhD in Management
- ◆ Only B.School in India to establish a Chair for Climate Change
- ◆ SCMS-Cochin School of Business is now one of the seven ACBSP (US) accredited B-Schools in India.

For information, please visit our website <www.scms.edu.in>



SCMS COCHIN SCHOOL OF BUSINESS

PRATHAP NAGAR, MUTTOM, ALWAYE, COCHIN-683106, KERALA, Ph: 0484 - 2623803/04, 2623885/87, Fax: 0484-2623855
Email: editor@scmsgroup.org, Website: <www.scmsgroup.org>
Journal Website: <www.scms.edu.in/jim>

ISSN-0973-3167

