

# INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT

I  
J  
R  
C  
M



A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

*Indexed & Listed at:*

Ulrich's Periodicals Directory ©, ProQuest, U.S.A., EBSCO Publishing, U.S.A., Cabell's Directories of Publishing Opportunities, U.S.A.

Open J-Gate, India [link of the same is duly available at Inlibnet of University Grants Commission (U.G.C.)],

Index Copernicus Publishers Panel, Poland with IC Value of 5.09 & number of libraries all around the world.

Circulated all over the world & Google has verified that scholars of more than 2401 Cities in 155 countries/territories are visiting our journal on regular basis.

Ground Floor, Building No. 1041-C-1, Devi Bhawan Bazar, JAGADHRI – 135 003, Yamunanagar, Haryana, INDIA

<http://ijrcm.org.in/>

# CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	ISLAMIC FINANCE AWARENESS IN PUBLIC AND FINANCIAL SECTOR GHULAM MUSTAFA SHAMI, DR. MUHAMMAD RAMZAN & AFAQ RASOOL	1
2.	GREEN MARKETING: THE INDIAN CORPORATE SCENARIO RAVINDER PAL SINGH	5
3.	EXCHANGE RATE MANAGEMENT: A CRITICAL LOOK INTO SEVERAL ALTERNATIVES PURNASHREE DAS & SUJIT SIKIDAR	9
4.	AN EMPIRICAL STUDY OF SERVQUAL, CUSTOMER SATISFACTION AND LOYALTY IN INDIAN BANKING SECTOR RAVINDRA KUMAR KUSHWAHA, DR. MADAN MOHAN & DEBASHISH MANDAL	13
5.	CHINA'S CURRENCY POLICY: WINNERS AND LOSERS OF AN INDIRECT EXPORT SUBSIDY GHULAM MUSTAFA SHAMI, DR. MUHAMMAD RAMZAN & AFAQ RASOOL	19
6.	SALES STYLES OF EXECUTIVES SELLING TWO AND FOUR WHEELERS DR. NAVPREET SINGH SIDHU	23
7.	FINANCIAL AND TAXATION ISSUES OF MICRO FINANCE BILL 2012: A MOVE TOWARDS RESPONSIBLE MICROFINANCE IN INDIA DR DHARUV PAL SINGH	29
8.	STUDENTS' CRITERIA IN SELECTING A BUSINESS SCHOOL DR. JEEMON JOSEPH	33
9.	CONSUMER BEHAVIOR IN ELECTRONIC BANKING: AN EMPIRICAL STUDY DHARMESH MOTWANI & DR. DEVENDRA SHRIMALI	38
10.	A NEW NOTION PROXIMITY FOR DATA PUBLISHING WITH PRIVACY PRESERVATION S. BOOPATHY & P. SUMATHI	41
11.	A STUDY ON ATTITUDE TOWARDS KNOWLEDGE SHARING AMONG KNOWLEDGE WORKERS IN EDUCATIONAL INSTITUTIONS IN MYSORE CITY NITHYA GANGADHAR & SINDU KOPPA	47
12.	MARKOV CHAINS USED TO DETERMINE THE MODEL OF STOCK VALUE AND COMPARED WITH P/E MODEL ROYA DARABI & ZEINAB JAVADIYAN KOTENAI	56
13.	APPLICATION OF PERT TECHNIQUE IN HEALTH PROGRAMME MONITORING AND CONTROL DR. SUSMIT JAIN	63
14.	ESTIMATION OF TECHNICAL EFFICIENCIES OF INDIAN MICROFINANCE INSTITUTIONS USING STOCHASTIC FRONTIER ANALYSIS B.CHANDRASEKHAR	69
15.	EFFECTIVE RETENTION STRATEGIES IN WORKING ENVIRONMENT C. KAVITHA	76
16.	A COMPARATIVE STUDY OF QUALITY OF WORK LIFE OF WOMEN EMPLOYEES WITH REFERENCE TO PRIVATE AND PUBLIC BANKS IN KANCHIPURAM DISTRICT A. VANITHA	78
17.	MANAGEMENT OF DISTANCE EDUCATION SYSTEM THROUGH ORGANIZATIONAL NETWORK MEENAKSHI CHAHAL	86
18.	A STUDY ON CONSTRUCTION OF OPTIMAL PORTFOLIO USING SHARPE'S SINGLE INDEX MODEL ARUN KUMAR .S.S & MANJUNATHA.K	88
19.	A STUDY ON EMPLOYEE ENGAGEMENT OF SELECT PLANT MANUFACTURING COMPANIES OF RAJASTHAN VEDIKA SHARMA & SHUBHASHREE SHARMA	99
20.	RELIABLE AND DISPERSED DATA SECURITY MECHANISM FOR CLOUD ENVIRONMENT C. PRIYANGA & A. RAMACHANDRAN	104
21.	CONSTRUCTION OF OPTIMUM PORTFOLIO WITH SPECIAL REFERENCE TO BSE 30 COMPANIES IN INDIA DR. KUSHALAPPA. S & AKHILA	108
22.	INVESTIGATING QUALITY OF EDUCATION IN BUSINESS AND ECONOMICS PROGRAMS OF ADDIS ABABA UNIVERSITY (AAU) AND BAHIRDAR UNIVERSITY (BDU) BIRUK SOLOMON HAILE	112
23.	FACTORS AFFECTING APPLICABILITY OF SECURITY CONTROLS IN COMPUTERIZED ACCOUNTING SYSTEMS AMANKWA, ERIC	120
24.	THE EFFECT OF POVERTY ON HOUSEHOLDS' VULNERABILITY TO HIV/AIDS INFECTION: THE CASE OF BAHIR DAR CITY IN NORTH-WESTERN ETHIOPIA GETACHEW YIRGA & SURAFEL MELAK	128
25.	STRATEGIC RESPONSES TO CHANGES IN THE EXTERNAL ENVIRONMENT: A CASE OF EAST AFRICAN BREWERIES LIMITED PATRICIA GACHAMBI MWANGI, MARTIN MUTWIRI MURIUKI & NEBAT GALO MUGENDA	134
26.	DEMOGRAPHIC VARIABLES AND THE LEVEL OF OCCUPATIONAL STRESS AMONG THE TEACHERS OF GOVERNMENT HIGHER SECONDARY SCHOOLS IN MADURAI DISTRICT DR. S. S. JEYARAJ	139
27.	HUMAN RESOURCE INFORMATION SYSTEM DR. NEHA TOMAR SINGH	149
28.	THE EFFECTS OF CORPORATE GOVERNANCE ON COMPANY PERFORMANCE: EVIDENCE FROM SRI LANKAN FINANCIAL SERVICES INDUSTRY RAVIVATHANI THURASINGAM	154
29.	A STUDY ON FINANCIAL HEALTH OF TEXTILE INDUSTRY IN INDIA: Z – SCORE APPROACH SANJAY S. JOSHI	159
30.	REGULATORY FRAME WORK OF GOOD CORPORATE GOVERNANCE WITH REFERENCE TO INDIAN CORPORATE GOVERNANCE MECHANISMS G. VARA KUMAR & SHAIK MAHABOOB SYED	165
	REQUEST FOR FEEDBACK	171

## CHIEF PATRON

**PROF. K. K. AGGARWAL**

Chancellor, Lingaya's University, Delhi  
Founder Vice-Chancellor, Guru Gobind Singh Indraprastha University, Delhi  
Ex. Pro Vice-Chancellor, Guru Jambheshwar University, Hisar

## FOUNDER PATRON

**LATE SH. RAM BHAJAN AGGARWAL**

Former State Minister for Home & Tourism, Government of Haryana  
Former Vice-President, Dadri Education Society, Charkhi Dadri  
Former President, Chinar Syntax Ltd. (Textile Mills), Bhiwani

## CO-ORDINATOR

**AMITA**

Faculty, Government M. S., Mohali

## ADVISORS

**DR. PRIYA RANJAN TRIVEDI**

Chancellor, The Global Open University, Nagaland

**PROF. M. S. SENAM RAJU**

Director A. C. D., School of Management Studies, I.G.N.O.U., New Delhi

**PROF. M. N. SHARMA**

Chairman, M.B.A., Haryana College of Technology & Management, Kaithal

**PROF. S. L. MAHANDRU**

Principal (Retd.), Maharaja Agrasen College, Jagadhri

## EDITOR

**PROF. R. K. SHARMA**

Professor, Bharti Vidyapeeth University Institute of Management & Research, New Delhi

## CO-EDITOR

**DR. BHAVET**

Faculty, Shree Ram Institute of Business & Management, Urjani

## EDITORIAL ADVISORY BOARD

**DR. RAJESH MODI**

Faculty, Yanbu Industrial College, Kingdom of Saudi Arabia

**PROF. SANJIV MITTAL**

University School of Management Studies, Guru Gobind Singh I. P. University, Delhi

**PROF. ANIL K. SAINI**

Chairperson (CRC), Guru Gobind Singh I. P. University, Delhi

**DR. SAMBHAVNA**

Faculty, I.I.T.M., Delhi

**DR. MOHENDER KUMAR GUPTA**

Associate Professor, P. J. L. N. Government College, Faridabad

**DR. SHIVAKUMAR DEENE**

Asst. Professor, Dept. of Commerce, School of Business Studies, Central University of Karnataka, Gulbarga

***ASSOCIATE EDITORS***

**PROF. NAWAB ALI KHAN**

Department of Commerce, Aligarh Muslim University, Aligarh, U.P.

**PROF. ABHAY BANSAL**

Head, Department of Information Technology, Amity School of Engineering & Technology, Amity University, Noida

**PROF. A. SURYANARAYANA**

Department of Business Management, Osmania University, Hyderabad

**DR. SAMBHAV GARG**

Faculty, Shree Ram Institute of Business & Management, Urjani

**PROF. V. SELVAM**

SSL, VIT University, Vellore

**DR. PARDEEP AHLAWAT**

Associate Professor, Institute of Management Studies & Research, Maharshi Dayanand University, Rohtak

**DR. S. TABASSUM SULTANA**

Associate Professor, Department of Business Management, Matrusri Institute of P.G. Studies, Hyderabad

**SURJEET SINGH**

Asst. Professor, Department of Computer Science, G. M. N. (P.G.) College, Ambala Cantt.

***TECHNICAL ADVISOR***

**AMITA**

Faculty, Government M. S., Mohali

***FINANCIAL ADVISORS***

**DICKIN GOYAL**

Advocate & Tax Adviser, Panchkula

**NEENA**

Investment Consultant, Chambaghat, Solan, Himachal Pradesh

***LEGAL ADVISORS***

**JITENDER S. CHAHAL**

Advocate, Punjab & Haryana High Court, Chandigarh U.T.

**CHANDER BHUSHAN SHARMA**

Advocate & Consultant, District Courts, Yamunanagar at Jagadhri

***SUPERINTENDENT***

**SURENDER KUMAR POONIA**

## CALL FOR MANUSCRIPTS

We invite unpublished novel, original, empirical and high quality research work pertaining to recent developments & practices in the area of Computer, Business, Finance, Marketing, Human Resource Management, General Management, Banking, Education, Insurance, Corporate Governance and emerging paradigms in allied subjects like Accounting Education; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Monetary Policy; Portfolio & Security Analysis; Public Policy Economics; Real Estate; Regional Economics; Tax Accounting; Advertising & Promotion Management; Business Education; Management Information Systems (MIS); Business Law, Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labor Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; Public Administration; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism, Hospitality & Leisure; Transportation/Physical Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Digital Logic; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Multimedia; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic and Web Design. The above mentioned tracks are only indicative, and not exhaustive.

Anybody can submit the soft copy of his/her manuscript **anytime** in M.S. Word format after preparing the same as per our submission guidelines duly available on our website under the heading guidelines for submission, at the email address: [infoijrcm@gmail.com](mailto:infoijrcm@gmail.com).

## GUIDELINES FOR SUBMISSION OF MANUSCRIPT

### 1. COVERING LETTER FOR SUBMISSION:

DATED: \_\_\_\_\_

**THE EDITOR**  
IJRCM

**Subject: SUBMISSION OF MANUSCRIPT IN THE AREA OF:**

**(e.g. Finance/Marketing/HRM/General Management/Economics/Psychology/Law/Computer/IT/Engineering/Mathematics/other, please specify)**

**DEAR SIR/MADAM**

Please find my submission of manuscript entitled '\_\_\_\_\_ ' for possible publication in your journals.

I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published elsewhere in any language fully or partly, nor is it under review for publication elsewhere.

I affirm that all the author (s) have seen and agreed to the submitted version of the manuscript and their inclusion of name (s) as co-author (s).

Also, if my/our manuscript is accepted, I/We agree to comply with the formalities as given on the website of the journal & you are free to publish our contribution in any of your journals.

#### **NAME OF CORRESPONDING AUTHOR:**

Designation:

Affiliation with full address, contact numbers & Pin Code:

Residential address with Pin Code:

Mobile Number (s):

Landline Number (s):

E-mail Address:

Alternate E-mail Address:

#### **NOTES:**

- a) The whole manuscript is required to be in **ONE MS WORD FILE** only (pdf. version is liable to be rejected without any consideration), which will start from the covering letter, inside the manuscript.
- b) The sender is required to mention the following in the **SUBJECT COLUMN** of the mail:  
**New Manuscript for Review in the area of (Finance/Marketing/HRM/General Management/Economics/Psychology/Law/Computer/IT/Engineering/Mathematics/other, please specify)**
- c) There is no need to give any text in the body of mail, except the cases where the author wishes to give any specific message w.r.t. to the manuscript.
- d) The total size of the file containing the manuscript is required to be below **500 KB**.
- e) Abstract alone will not be considered for review, and the author is required to submit the complete manuscript in the first instance.
- f) The journal gives acknowledgement w.r.t. the receipt of every email and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of manuscript, within two days of submission, the corresponding author is required to demand for the same by sending separate mail to the journal.

2. **MANUSCRIPT TITLE:** The title of the paper should be in a 12 point Calibri Font. It should be bold typed, centered and fully capitalised.

3. **AUTHOR NAME (S) & AFFILIATIONS:** The author (s) **full name, designation, affiliation (s), address, mobile/landline numbers**, and **email/alternate email address** should be in italic & 11-point Calibri Font. It must be centered underneath the title.

4. **ABSTRACT:** Abstract should be in fully italicized text, not exceeding 250 words. The abstract must be informative and explain the background, aims, methods, results & conclusion in a single para. Abbreviations must be mentioned in full.

5. **KEYWORDS:** Abstract must be followed by a list of keywords, subject to the maximum of five. These should be arranged in alphabetic order separated by commas and full stops at the end.
6. **MANUSCRIPT:** Manuscript must be in **BRITISH ENGLISH** prepared on a standard A4 size **PORTRAIT SETTING PAPER**. It must be prepared on a single space and single column with 1" margin set for top, bottom, left and right. It should be typed in 8 point Calibri Font with page numbers at the bottom and centre of every page. It should be free from grammatical, spelling and punctuation errors and must be thoroughly edited.
7. **HEADINGS:** All the headings should be in a 10 point Calibri Font. These must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.
8. **SUB-HEADINGS:** All the sub-headings should be in a 8 point Calibri Font. These must be bold-faced, aligned left and fully capitalised.
9. **MAIN TEXT:** The main text should follow the following sequence:

**INTRODUCTION**

**REVIEW OF LITERATURE**

**NEED/IMPORTANCE OF THE STUDY**

**STATEMENT OF THE PROBLEM**

**OBJECTIVES**

**HYPOTHESES**

**RESEARCH METHODOLOGY**

**RESULTS & DISCUSSION**

**FINDINGS**

**RECOMMENDATIONS/SUGGESTIONS**

**CONCLUSIONS**

**SCOPE FOR FURTHER RESEARCH**

**ACKNOWLEDGMENTS**

**REFERENCES**

**APPENDIX/ANNEXURE**

It should be in a 8 point Calibri Font, single spaced and justified. The manuscript should preferably not exceed **5000 WORDS**.

10. **FIGURES & TABLES:** These should be simple, crystal clear, centered, separately numbered & self explained, and **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. It should be ensured that the tables/figures are referred to from the main text.
11. **EQUATIONS:** These should be consecutively numbered in parentheses, horizontally centered with equation number placed at the right.
12. **REFERENCES:** The list of all references should be alphabetically arranged. The author (s) should mention only the actually utilised references in the preparation of manuscript and they are supposed to follow **Harvard Style of Referencing**. The author (s) are supposed to follow the references as per the following:
  - All works cited in the text (including sources for tables and figures) should be listed alphabetically.
  - Use (ed.) for one editor, and (ed.s) for multiple editors.
  - When listing two or more works by one author, use --- (20xx), such as after Kohl (1997), use --- (2001), etc, in chronologically ascending order.
  - Indicate (opening and closing) page numbers for articles in journals and for chapters in books.
  - The title of books and journals should be in italics. Double quotation marks are used for titles of journal articles, book chapters, dissertations, reports, working papers, unpublished material, etc.
  - For titles in a language other than English, provide an English translation in parentheses.
  - The location of endnotes within the text should be indicated by superscript numbers.

**PLEASE USE THE FOLLOWING FOR STYLE AND PUNCTUATION IN REFERENCES:**

**BOOKS**

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

**CONTRIBUTIONS TO BOOKS**

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

**JOURNAL AND OTHER ARTICLES**

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

**CONFERENCE PAPERS**

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

**UNPUBLISHED DISSERTATIONS AND THESES**

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

**ONLINE RESOURCES**

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

**WEBSITES**

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 <http://epw.in/user/viewabstract.jsp>

**ISLAMIC FINANCE AWARENESS IN PUBLIC AND FINANCIAL SECTOR**

**GHULAM MUSTAFA SHAMI**  
**RESEARCH SCHOLAR**  
**SUPERIOR UNIVERSITY**  
**LAHORE**

**DR. MUHAMMAD RAMZAN**  
**DIRECTOR LIBRARIES**  
**LAHORE UNIVERSITY OF MANAGEMENT SCIENCES**  
**LAHORE**

**AFAQ RASOOL**  
**RESEARCH SCHOLAR**  
**SUPERIOR UNIVERSITY**  
**LAHORE**

**ABSTRACT**

*History of Islamic finance is not much old, it began only three decades ago, but its growth has been remarkable. The growth of Islamic finance has been very strong over the past few years. In 1975, in one country there is only single Islamic financial institution but now 300 Islamic financial institutions in more than 75 countries and reach US\$1.3trillion in total asset in 2011. Islamic finance is gaining popularity in Europe and the United States day by day, but they are mainly concentrated in the Middle East and Southeast Asia. The annual growth rate is estimated of Islamic finance is 20% per year. The one main hurdle in the way of Islamic finance growth is public awareness, Pakistan is a Muslim country but a person here believes there is not much difference between Islamic and conventional banking. The purpose of this study to analyzed public awareness about Islamic finance. The present study also discussed the brief introduction of Islamic finance and its principles and advantages. For this purpose questionnaire is disturbed among financial institution professional and customers who are connected with financial institution on daily basis. The researcher personally connected with respondent and collected the data. After analyzing the whole data researcher come to conclusion public awareness is main issue in the way of growth of Islamic finance. The paper is end by offering different useful recommendations for the improvements of public awareness about Islamic finance.*

**KEYWORDS**

Islamic Finance, Public Awareness.

**1. INTRODUCTION**

**I**slamic finance, which starts single institution named Bank Faisal in Egypt in 1975, is developing at an extraordinary pace. El- Qorchi (2005) revealed that the number of Islamic financial institute indicate an increasing trend in their role globally, which has risen over 300 Islamic financial institutions in more than 75 countries though they are mainly focus in the Southeast Asia and middle east, but growth rate in Europe and the United States is also remarkable. Islamic finance industry will grow at a rate of 20 percent per year, from current assets of US\$300 billion (Al-Salem, 2008).

In a study, Princeton University (United States) published in 2005, the economist Timur Kuran has shown that the theoretical principles of Islamic finance, which have relatively short history. According to this publication the first modern Islamic bank was founded in Egypt, Mit Ghamr in 1963.

The Islamic finance, in accordance with Islamic law, is based on two principles: the prohibition of interest. Islam prohibits both commercial and civil transactions by based to interest (riba), the speculation (gharar) or random (maysir). Islamic finance is \$ 700 billion global market (Princeton University USA). The verse 275 of the second sura of the Qur'an explains the prohibition of interest: God hath permitted trade and forbidden usury. To explain this verse, a hadith of Muhammad explains the rules of legitimate trade. This hadith is general in scope because it has six products labeled "ribawi" gold, silver, corn, wheat, dates, and salt. Any exchange of identical product corns, gold, golden, wheat against wheat with a benefit to a person constitutes a usurious transaction, except as regards the benefits resulting from the exchange of products of different nature cons, golden and wheat.

The general principles of Islamic finance are as follows:

- The prohibition of riba and the removal of debt-based financing from the economy.
- The prohibition of gharar, provide full information and removal of any asymmetrical information in the contract.
- The exclusion of financing and sealing in irresponsible social activities and commodities such as production of alcohol and gambling.
- Risk sharing, the provider of financial funds and the entrepreneur share business risk.
- Materiality, a financial transaction need to have a material finality, it links to real economic transaction.
- Justice, a financial transaction must not lead to one side benefit of one party.

Source: Gait and Worthington 2007

Islamic principles of interest are deals with issues of fairness and justice rather than efficiency narrowly defined. These principles focus on sharing risk, justice which is necessity for stable economy. Islamic finance is convincing the world that is not only covers the ethical aspect of the society but also give economics benefits. In the economic model each individual is involved in economic activity. Islamic finance as a concept is based on theme of justices and fairness, risk sharing, socially responsible investment and affinity marketing. Islamic principles themselves are based on core ideas, which include individual responsibility, commitment to economic and social justice and mandatory care for the environment. Islam believes an ethical value that leads toward justice and economic stability. One of the recent examples of strong Islamic financial system, when the international financial market rattled by sub-prime crises, Islamic banks has not yet felt it. Islamic finance has no problem with fluctuations in asset value instead it diverges according to actual business trend. The current credit crises is the result of excessive lending and pure speculation and many financial analyst and experts believe and confirmed Islamic banks are untouched by the global financial crisis. Many experts also believe more and more peoples are coming toward ethical based banking.

The current position is that there are more than 300 Islamic financial institutions all over the world with US\$1.3 trillion in assets. The growth rate of Islamic banking industry world-wide is 20% per year. In UK and USA trend has rise day by day of Islamic banking, and now in some Muslims countries partial or total transformation taken place in favor of Islamic banking. Islamic finance concept also rise in universities, in majority Muslim countries Islamic banking now consider a separate subject for public awareness.

Islamic banking has established its identity, Alhamdulillah it is here to stay, grow and develop into a competitive alternative to interest-based financial structure. Central banks of several Muslim countries have joined hands in order to give it an international standard. One of major issue identified here that may help consolidation and growth of Islamic banking is public awareness.

Pakistan is a Muslim country where a person believes on Islam and its values but in UK more strong Islamic financial system than the Pakistan, reason behind this peoples are not familiar about Islamic financial system. This study is conducted to aware the peoples about Islamic financial system and the key advantages on conventional financial system.

This paper contains four sections. Section 1 contain introduction of Islamic finance its principles, advantages and problem awareness issue. Section 2 contains review literature on Islamic finance, benefits on conventional system and problem awareness issue. Section 3 contains data collection techniques, methodology. Section 4 contains Empirical analysis. Section 5 contains conclusion and recommendations.

## 2. REVIEW OF LITERATURE

Islamic finance based on religious beliefs and cultural characteristics and ethical value of Muslim societies. According to Shariah (Islamic law), the Islamic mode of finance based on profit and loss sharing and prohibit fixed-returns. The Shariah also prohibits activities related to speculation, risk and uncertainty. Interest may be paid only for taking investment risk but not for time value risk-free investment. As such, Paper- or financial-based lending is not allowed in Islam but asset based lending is allowed. The law also prohibits investment in irresponsible society activities, such as lending for trading of alcohol.

According to Aziz Tayyebi (2008) "Islamic finance is any finance that is compliant with the principles of Islamic law" Islamic laws (Shariah) in terms of finance explains in detail the ethical concept of capital and money, relationship between profit and risk and ethical responsibility of institutions.

Islam is a complete way of life that has set of goals and values which covers all aspect of human life (Al-Tamimi & company 2004). For clear understanding of Islam it is necessary to have certain knowledge about the history of financial system of Islam. It is not easy for individuals who are used to western tradition to understand the teaching of Islam (Ibrahim 2000).

In the early days when Islamic banking appeared with its ethical values, it is assumed it has no space in strong financial system. But last few years attitude has changed gradually, many new Islamic banks opened in recent years and Islamic financial system attract a large number of customers (Haqiqi and pomeranz 2000).

The time when international financial market rattled by sub-prime mortgage crises, Islamic banks have not yet felt it. Middle East online explained there are two main causes that Islamic financial institutions remain unaffected by sub-prime crises. First reason is their security from the liquidity problem and second reason can be attributed to the rating of complete investment risk. According to the rating of investment risks, Islamic finance has no problem with fluctuation of risks.

Many experts believe more and more customers come toward Islamic financial system. This can be credited to the ethics and values inherent within the Islamic banking system (Ahmed 1992).

Islamic principles are deals with justice and fairness rather than efficiency narrowly defined. These principles focus on the risk sharing which leads towards stable economy (Siddiqi 2000).

Adam smith is 1776 argued that even self interest is the prime interest of economic activity; the result is utilization of resources that serves economy collective interest in best manner. But if good and services produces too little or too much, profit opportunities move towards entrepreneur that got incentives by change the line of production. In other words the system based on profitability will ensure economic efficiency but lead toward fluctuation and speculation of product, recent sub-prime crises is best example. Second profit sharing is more conducive to economic growth leads toward economic prosperity by increasing the investment and share the risk.

Finally with the argued of Adam smith Islamic system promotes the economic development. It is likely to be more stable for economy and is less vulnerable to financial crisis that can be caused by speculative activities.

It explains the Islamic financial system and its benefits over conventional financial system. The aim of this study to discussed one of major issue regarding Islamic finance is public awareness.

According to State bank of Pakistan repot on Islamic banking current issues 2012, one on of major issue is public awareness. Peoples even don't know there is any concept of finance prevails in Islam.

Pakistan is a Muslim country, our religion and concepts based on Islamic values. A report by the international financial services, London, in Britain now Islamic financer sectors is larger than Pakistan.

According to information from a publication by New Millennium publishing (2004), a survey of 503 Muslims in ten cities throughout England, undertaken by Humayon Dar, showed that many respondents had little knowledge of shariah-complaint finance.

Islamic finance is feasible no doubt about it but there is need to public awareness about mode of Islamic financing and need to implementation of Islamic financial structure in Islamic countries.

## 3. OBJECTIVE OF THE STUDY

1. Briefly introduction of Islamic finance and its principles.
2. Islamic financial system is more economically beneficial than conventional financial system.
3. To study the awareness of Pakistan peoples about Islamic Finance.
4. To increase the awareness of Islamic finance in Pakistani peoples.

## 4. DATA COLLECTION & METHODOLOGY

This study is design to measure the public awareness about Islamic finance. The peoples used for this research were all banking professional and the customer who are attached with financial sectors on daily basis. The professional have good knowledge about financial sectors and the customers who are selected for this purpose not only have goof financial record but also have great knowledge about financial sectors. In this study the researcher selected all respondent on the basis of judgmental sampling and use non probability random sampling for respondents. After a favorable response, the researcher preceded to a survey a population of 150. The first part of the questionnaire is related to public awareness about Islamic finance consist of six question, based on a five scale rating from Strongly Agree (SA) to Strongly Disagree (SD). The purpose of this part was to assess the perception of banking professional and expert customers about How much they aware about Islamic Financial system. The second part consists of demographic type of questions, like income, age and experience. In total ten questions were asked to analyze the public awareness about Islamic Financial system.

As the study aim to analyze public awareness about Islamic Finance, the research was personally connected with all the professionals and fills the questionnaire and was analyze by using various software's with good analytical capability. The analysis of the questionnaire offers insight about banking professionals and customers of the Islamic financial system and its principles.

## 5. EMPIRICAL ANALYSIS

There were a total of 150 questionnaires distributed because the researcher calculated that this was an appropriate sample. Data provided in table 5.1 about demographic variables and Table 5.2 about public awareness of Islamic Finance.

TABLE 5.1: DEMOGRAPHIC VIEW OF RESPONDENT

Demographic Variables	Number of Respondent	Percentage
Age	20-30	47
	30-40	37
	40-50	39
	50 and above	27
		18
Attachment With Financial Institution	1-10 years	51
	11-20 years	27
	21-30 years	40
	31-40 years	32
		21.33
Income	20,000-50,000	45
	51,000- 80,000	30
	81000- 120,000	12
	121000 and above	63
		42

Table 5.1 shows the profile of all respondent. More experience shows peoples have strong background of experience with financial institution. Income level shows peoples belong to both categories; they are professionals and businessmen too.

TABLE 5.2 AWARENESS ABOUT ISLAMIC FINANCE

Demographic Variables	Number of Respondent	Percentage
Do you believe ethics must be Part of financial system	strongly agree	77
	Agree	53
	Neutral	10
	Disagree	8
	Strongly Disagree	2
Do you believe justice, materiality And risk sharing more beneficial	strongly agree	80
	Agree	36
	Neutral	27
	Disagree	5
	Strongly Disagree	2
Noninterest-based financial System is better than Interest-based	strongly agree	93
	Agree	36
	Neutral	10
	Disagree	1
	Strongly Disagree	10
Do you want to see Islamic Financial system in Pakistan Economy	strongly agree	77
	Agree	53
	Neutral	5
	Disagree	5
	Strongly Disagree	10
There is little or no difference Between two financial system	strongly agree	68
	Agree	31
	Neutral	10
	Disagree	13
	Strongly Disagree	28
There is great awareness about Islamic Financial system in Pakistan	strongly agree	4
	Agree	10
	Neutral	15
	Disagree	57
	Strongly Disagree	70

Table 5.2 shows that 86.66% believe that ethics is must be part of financial system while 6.67% are neutral and 6.67% peoples believes ethics and financial system are two different things. The result shows mostly peoples believes ethics is a compulsory part of the financial system. This behavior clearly identify why peoples moves towards ethical banking.

Table 5.2 shows that 77.34% believe that justice, risk sharing and materiality are more beneficial for economy while 18% are neutral and 4.67% peoples believes there is no space of justice, risk sharing and materiality in financial system. The result shows mostly peoples believes not only ethical banking they believes on all Islamic financial principles. This behavior clearly identifies behavior of peoples towards Islamic financial system.

Table 5.2 shows that 86% believe that non-interest financial system are more beneficial for economy while 6.67% are neutral and 7.34% peoples believes interest-based financial system is more beneficial. The result shows mostly peoples prefer non-interest based financial system. This behavior clearly identifies behavior of peoples towards Islamic financial system.

Table 5.2 shows that 86.67% want to see Islamic financial system in Pakistan while 3.33% are neutral and 10% peoples believes conventional financial system is more beneficial. The result shows mostly peoples prefer non-interest based financial system. Here, difficult to describe peoples prefer Islamic financial system due to religious attachment or due to any logic but hard to find.

Table 5.2 shows that 66% respondent believes that there is very little or no difference between Islamic and conventional financial system, while 6.67% respondent are neutral and 27.33% respondent believes there is much difference between Islamic and conventional financial system. the result shows mostly respondent believes both system are same, its make the picture more clear of very last question may be respondent want to see Islamic financial system in Pakistan due to his religious attachment, but they have not much awareness about Islamic financial system.

Table 5.2 shows only 9.33% respondent believes there is much awareness of Islamic financial system in Pakistan while 10% are neutral and 81.67% peoples believes there is not much awareness of Islamic financial system in Pakistan.

This question make the clear picture of the analysis peoples are not aware of Islamic financial system, they believes it quite similar to conventional financial system. But they want to follow all financial system principles in system while they were not much similar with these principles. They believe on ethical banking, it shows there is great positional of Islamic financial system in Pakistan, but there needs to aware the public about Islamic financial system.

## 6. CONCLUSION AND RECOMMENDATIONS

The future is definitely bright and glorious for Islamic Financial system, because it is a concept based on theme of community banking, justice and materiality, ethical and socially responsible investment and the concept of share the risk. These concepts are based on core idea which includes individual responsibility, commitment to economic and social justice, and mandatory care for the environment. After detailed study of available literature and analyzing responses from

respondents, researcher come to conclusion that Islamic finance is convincing the world that is not only cover the ethical aspects of the society but also give the economic benefits. Many experts believe more and more customers come toward Islamic financial system. This can be credited to the ethics and values inherent within the Islamic banking system (Ahmed 1992).

This study shows lack of public awareness do not offer strong growth potential for Islamic Finance industry within the Republic, According to State bank of Pakistan report on Islamic banking current issues 2012, one on of major issue is public awareness. Peoples even don't know there is any concept of finance prevails in Islam.

Pakistan is a Muslim country, our religion and concepts based on Islamic values. A report by the international financial services, London, in Britain now Islamic financier sectors is larger than Pakistan. So lack of awareness is the main hurdle in the way of growth of Islamic finance in Pakistan. This study shows the potential of Islamic Finance in Pakistan just need to aware peoples about the foundation, principles and products of Islamic Finance.

This problem is likely to be solved with the passage of time. But pace of development of Islamic banking can be expanded through the following: (1) public education campaigns about Islamic finance, (2) inclusion of Islamic banking concepts in school curriculum, make Compulsory For commerce student (3) making Islamic financing course a part of business administration programs and specialized products subjects must be introduced (4) offering degree programs in Islamic financing and conduct seminars for professionals, businessmen and for students on monthly basis.

## 7. REFERENCES

1. Abdallah, A., 1987. 'Islamic banking', Journal of Islamic Banking and Finance, January March, 4(1): 3156.
2. Aftab, M., 1986. 'Pakistan moves to Islamic banking', The Banker, June: 5760.
3. Al-Ahmed, A.Y. [1996], "The Islamic Financial Instruments Utilization", M.Sc. Dissertation, Loughborough University, 1996.
4. Al-Dhahiri, M., Al-Khamiri, M., and Al-Hamli, S. [2003], "Islamic banking and finance: A new alternative and opportunity", unpublished manuscript, American University of Sharjah, 2003.
5. AL-Salem, Faoud (2008), "The Size and Scope of the Islamic Finance Industry: An Analysis," International Journal of Management, May 2008 (online version).
6. Asmani, A. (2006), "Banks Get Light to Offer Another Islamic Product", The Straits Times (Singapore), 13 June 2006.
7. Hamid, A. H. and Nordin, N.Z. [2001], "A Study on Islamic Banking Education and Strategy for the new Millennium— Malaysian Experience", International Journal of Islamic Financial Services 2, No. 4.
8. Imady, O. and H. D. Seibel (2006), Principles and Products of Islamic Finance, Working Paper No. 2006-1, Development Research Center, University of Cologne, Germany.
9. Iqbal, M., & Ahmad. T. (2003). Islamic Finance and Economic Development. Khan, M. S. and A. Mirakhor, 1990, 'Islamic banking: Experiences in the Islamic Republic of Iran and in Pakistan', Economic Development and Cultural Change, Vol. 38, No. 2.
10. Saeed. Prof. Dr. K. A.: Islamic Banking Global & Pakistan scene, Pakistan & Gulf Economist, March 12-18, 2007: pp26.
11. Saleem, Shahid, "International Islamic Banking". Islamic Law and Law of the Muslim World Paper No. 07-05
12. State bank WEBSITE: Current Report on Issued face by Islamic Banking in 2012
13. Usmani, M. M. T. (2005) Introduction to Islamic finance. Karachi: Maktaba maariful Quran.
14. Venardos, A. M. (2006), Islamic Banking and Finance in South-east Asia: Its Developments and Future, Asia-Pacific Business Series Vol. 3 (2nd ed.).

**GREEN MARKETING: THE INDIAN CORPORATE SCENARIO****RAVINDER PAL SINGH****HEAD****SETH SUSHIL KUMAR BIHANI INSTITUTE OF MANAGEMENT & INFORMATION TECHNOLOGY  
SRIGANGANAGAR****ABSTRACT**

*Green Marketing is a concept which has made its place in the modern corporate scenario. The corporate houses have started recognizing their responsibilities towards society strategically inculcating their consumer friendly image in the mind of consumers. The corporate are now not hesitating to utilize the resources in an efficient manner without wastages to achieve the organizational objectives. Strategy makers and consumers have a great need to understand the implications of economic aspects of Green marketing. Through the concept of Green Marketing the performance and efficiency can be increased many folds. Such marketing Techniques may be explained as a direct result of movement in the minds of the consumer market. As a result of this corporate have started targeting consumer specifically who are more concerned about the environment. The consumers by showing their interests in protecting environment by their purchasing decisions through their incorporation into the process and content of the marketing strategy for whatever product may be required. Green marketing is a strategy to build up its image rather than inculcate is as a part of policy and work silence. Companies that development new and improved products and services with environment inputs in mind give themselves access to new markets increase their profits sustainability and enjoy a competitive advantage over the companies which are not showing much interest in being environment friendly. This paper discusses how businesses have increased their ability of targeting green consumers and those who are more concerned with the environment and allow these businesses to affect their purchasing decisions. The paper also identifies the challenges and opportunities businesses have with the green marketing. The paper also examines the current trends of green marketing in India and explores the reason why companies are showing their interest in it. It concludes that the concept of Green Marketing is something that will continuously grow with the increasing awareness to the business as well as consumers.*

**KEYWORDS**

Consumers, Ecological, Eco Friendly, Environment, Green Marketing.

**INTRODUCTION**

It is only the environment issues that have fetched the recognition all over the world in business as well as in the consumers mind throughout the universe. Not only few big conglomerates corporate firms who are showing their concerns about the deterioration of the living environment but almost all the consumers all over the world is concerned about this common threat of global warming. Corporate houses are moulding their business strategies taking into consideration the green marketing for the promotion of their products by employing environmental claims either about their attributes or about the systems, policies and processes of the firms that manufacture or sell them. Clearly green marketing is part and parcel of overall corporate strategy along with manipulating the traditional marketing mix (Product, Price, Promotion and Place).

Unfortunately, a majority of people believe that green marketing refers solely to the promotion or advertising of products with environmental characteristics. Terms like Phosphate Free, Recyclable, Refillable, Ozone Friendly, and Environmentally Friendly are some of the things consumers most often associate with green marketing. While these terms are green marketing claims, in general green marketing is a much broader concept, one that can be applied to consumer goods, industrial goods and even services. For example, around the world there are resorts that are beginning to promote themselves as "Eco tourist" facilities, i.e., facilities that "specialize" in experiencing nature or operating in a fashion that minimizes their environmental impact [May 1991, Ingram and Durst 1989, Troumbis 1991]. Thus green marketing incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising. Yet defining green marketing is not a simple task. Indeed the terminology used in this area has varied, it includes: Green Marketing, Environmental Marketing and Ecological Marketing.

**RESEARCH METHODOLOGY**

For the purpose of this study, the method of in-depth and critical review of available literature was undertaken. The idea was to aggregate existing knowledge in the field, thereby stimulating interest of investors in the emerging green economy.

**RESEARCH OBJECTIVES**

In more specific terms, this study hopes to provide answers to the following research questions.

- What makes the corporates to follow the green marketing initiatives?
- What does it mean to do business differently?
- What idea the consumers have about the green marketing concepts?
- What Innovative Schemes are required to drive the green economy?
- How the green marketing concepts can change the Indian corporate scenario?
- What are the benefits & co-benefits of Green Economy?
- What are the potential costs/risks of doing business differently?

**WHY GREEN MARKETING**

Green marketing has positive influences on multiple participants in the economy. The environment, developing economies, consumers, corporate Strategies, the Product, production process and supply chain benefits from green marketing. First we consider the environmental benefits from the Green Marketing.

**ENVIRONMENTAL BENEFITS**

The obvious benefit of green marketing is the environment. Green marketing can have an influence on climate change in several substantial ways. Fossil fuel consumption is a major source of greenhouse gases associated with climate change in several substantial ways. Fossil fuel consumption is a major source of greenhouse gases associated with climate change. Two leading source of climate change are burning of coal for electricity and burning of gasoline for automobile transportation. Green marketing initiatives focussed on product development strategies reduce the need to rely on these forms of energy. For example, new appliances are designed with fuel efficiencies that markedly reduce energy consumption.

Green marketing reduces air pollution in multiple ways. For Example, New York Mayor Bloomberg has called for the complete replacement of taxis with hybrid cars by 2012. These hybrid cars will reduce New York City carbon dioxide emissions by 215,000 tons while doubling cab gas mileage. This efficiency means fewer emissions and lower air pollution.

## THE GREEN SCENARIO IN DEVELOPING ECONOMIES

The term developing economies refers to nation that has a relatively low gross domestic product (GDP) per capita. The low income, underdeveloped assets and economic vulnerability endemic to these economies results in high dependence on the agriculture sector. Inhabitation in these markets however face increased exposure to draught, intense storms, food and environmental stress that limits the ability to enhance quality of life. Climate change limits agricultural productivity, increase water stress, raise sea level, negatively transforms ecosystem and thwart human health. These factors do not operate in isolation: interactively, they contribute to hunger and poverty in developing markets. Green marketing and production stands to reduce climate change and consequently limit hunger and poverty. Marketing of green technologies enables firms operating in these countries to leapfrog antiquated operations with efficient and environmentally friendly designs. New green technologies enable such economies to bypass antiquated technologies previously employed in mature market economies.

## CONSUMER BENEFITS

Consumer benefits in several important ways through green marketing. These benefits often influence consumer decision making and consumers will vary in the extent to which they value these benefits. Initially consumers benefit from the knowledge that they are doing their part to reduce climate change. These consumers are likely to favour corporate efforts to reduce pollution over efforts to raise corporate profitability. Consumers also value the opportunity to be associated with the environmentally friendly products and organisations. For instance the body shop retail ambience prompts customers to associate their consumption with an environmentally friendly organisation.

Consumer wants ecologically friendly products without sacrificing other valuable features. Current green marketing efforts however enable some firms to offer green products that provide initial product savings, lower energy costs and access to new technologies. For example, the LCD monitors marketed by Dell offer substantial savings over the CRT monitors currently being phased out of the product line. These new monitors are less expensive and employ the more recent computer display technology.

## STRATEGIC BENEFITS

Managers of corporate strategies realize multiple benefits from a green approach to marketing. Companies that incorporate ecological consciousness into their mission statements and strategy enhance their images among consumers, employees, investors, issuers and the general public. Some consumers have strong affinities towards green products and approaching the market with an ecological focus enhances images of the brand among these consumers.

Corporate initiatives that emphasize a green orientation to market have several implications for the workforce. First, potential employees may decide whether to interview a firm based on company's environmental image.

Green marketing also has implications for financial markets. As fuel cost rise and greenhouse gas emissions escalate, investors are flocking to companies that can help alleviate these problems. Investors are attracted to specialize green funds that feature portfolio of stocks from environmentally conscious firms.

Green marketing strategies enable firms to chart continued improvement in environmental performance. Corporate efforts to chart environmental performance enable companies to gain understanding of how the firm affect the environment as well as how the environment affects the firm.

Green marketing also provides a strategic avenue that enable firms to develop alliances with interest groups outside the organization. Green marketing firms establish alliances with Government, local communities, non-government organizations (NGOs), industry experts and competitors.

## IMPORTANCE OF GREEN MARKETING

Companies that develop virgin and improved products and services with environment inputs in mind give themselves access to new markets, increase their profit and enjoy competitive advantage over the companies which are not concerned for the environment. The advantages of green marketing are specified below.

1. Green marketing is cost effective in the long run, though initially the cost seems to be a little more.
2. It helps in exploring the new market and enjoying competitive advantage.
3. Green marketing ensures the sustained growth in the long term along with profitability.
4. It is environment friendly in the sense it helps the companies to market their products and services keeping the environment factor in mind.
5. This is well known that the resources are limited but human wants are not having any limit, therefore it is important for the marketers to utilize the resources efficiently without making the waste to achieve the organization's objectives.
6. Green marketing helps to protect the ozone and whole the environment for the wellbeing of the community at large.

## RATIONALES FOR USING GREEN MARKETING

There are several reasons that enhance the firms to adopt green marketing with much more efforts on this concept. Five such logics for this are as under.

1. Organizations perceive environmental marketing to be an opportunity that can be used to achieve its objectives
2. Organizations believe they have a moral obligation to be more socially responsible
3. Governmental bodies are forcing firms to become more responsible.
4. Competitors' environmental activities pressure firms to change their environmental marketing activities and
5. Cost factors associated with waste disposal, or reductions in material usage forces firms to modify their behaviour

## OPPORTUNITIES

As demand changes, many firms see these changes as an opportunity to exploit and have a competitive advantage over firms marketing nonenvironmentally responsible alternatives. Some examples of firms who have strived to become more environmentally responsible, in an attempt to better satisfy their consumer needs are:

McDonald's replaced its clam shell packaging with waxed paper because of increased consumer concern relating to polystyrene production and Ozone depletion.

Tuna manufacturers modified their fishing techniques because of the increased concern over drift net fishing, and the resulting death of dolphins.

Xerox introduced a "high quality" recycled photocopier paper in an attempt to satisfy the demands of firms for less environmentally harmful products.

## GOVERNMENT PRESSURE

As with all marketing related activities, governments want to "protect" consumer and society; this protection has significant green marketing implications. Government regulations relating to environmental marketing are designed to protect consumers in several ways. Reduce production of harmful goods or by-products. Modify consumer and industry's use and/or consumption of harmful goods. Ensure that all types of consumers have the ability to evaluate the environmental composition of goods. Government establish regulations designed to control the amount of hazardous wastes produced by firms.

## COMPETITIVE PRESSURE

Another major force in the environmental marketing area has been firms' desire to maintain their competitive position. In many cases firms observe competitors promoting their environmental behaviour and attempt to emulate this behaviour. In some instances this competitive pressure has caused an entire industry to modify and thus reduce its detrimental environmental behaviour. For example when one tuna manufacturer stopped using drift nets the others followed suit.

## SOCIAL RESPONSIBILITY

Many firms are beginning to realize that they are members of the wider community and therefore must behave in an environmentally responsible fashion. This translates into firms that believe they must achieve environmental objectives as well as profit related objectives. This results in environmental issues being integrated into the firm's corporate culture. There are examples of firms adopting both strategies.

An example of a firm that does not promote its environmental initiative is Coca-Cola. They have invested large sums of money in various recycling activities, as well as having modified their packaging to minimize its environmental impact. While being concerned about the environment, Coke has not used this concern as a marketing tool. Thus many consumers may not realize that Coke is a very environmentally committed organization. Another firm who is very environmentally responsible but does not promote this fact, at least outside the organization, is Walt Disney World (WDW). WDW has an extensive waste management program and infrastructure in place, yet these facilities are not highlighted in their general tourist promotional activities.

## COST OF PROFIT ISSUES

Firms may also use green marketing in an attempt to address cost or profit related issues. Disposing of environmentally harmful byproducts, such as polychlorinated biphenyl (PCB) contaminated oil are becoming increasingly costly and in some cases difficult. Therefore firms that can reduce harmful wastes may incur substantial cost savings. When attempting to minimize waste, firms are often forced to re-examine their production processes. In these cases they often develop more effective production processes that not only reduce waste, but reduce the need for some raw materials. This serves as a double cost savings, since both waste and raw material are reduced. In other cases firms attempt to find end-of-pipe solutions, instead of minimizing waste. In these situations firms try to find markets or uses for their waste materials, where one firm's waste becomes another firm's input of production. One Australian example of this is a firm who produces acidic waste water as a by-product of production and sells it to a firm involved in neutralizing base materials.

## EXAMPLES OF ENVIRONMENTALLY-BENEFICIAL GREEN PRODUCTS AND SERVICES

- Paper containing post-consumer wastepaper
- Cereals sold without excess packaging
- Shade-grown coffee beans
- Cleaning supplies that do not harm humans or environment
- Wood harvested from sustainable forests
- Energy-efficient light bulbs
- Energy-efficient cars
- Energy from renewable sources of energy such as windmills and solar power

## TOP GREEN INDIAN COMPANIES

Judging by the number of large, small and mid-size Indian companies that are setting the trend with green initiatives, India is serious about building environmental sustainability into its business practices. The following companies who made it to the list of top ten green Indian companies prove the statistics right.

### SUZLON ENERGY

The world's fourth largest wind turbine maker is among the greenest and best companies in India. They are saving coal, uranium with production of electricity by using huge number of wind-mills. They also attempting for clean and green energy. The concept of a Inspiring place to work is deep rooted in the mission of 'powering a greener tomorrow, today' begins by translating these very words into action by creating an environment that is powered by renewable energy. Suzlon One Earth has unique features that make it stand for the very purpose it was built.

### ITC LIMITED

ITC has strengthened their commitment to green technologies by introducing 'Ozone-treated elemental chlorine free' bleaching technology for the first time in India. It is also manufacturing eco-friendly business use paper 'paperkrafts'. ITC also providing an opportunity to consumers to be a partner in efforts to mitigate the adverse impact of climate change and create positive environmental footprints. It is also selling 'Classmate' notebooks which are also environment friendly.

### TATA METALIKS LIMITED (TML)

Every day is Environment Day at TML. It is one of the top green companies in India. A practical example that made every employee sit up and take notice is the company's policy to discourage working on Saturdays at the corporate office. Employees follow the practice of switching off Lights during the day, because the entire office depending on sunlight.

### TAMIL NADU NEWSPRINT AND PAPERS LTD.(TNPL)

TNPL received the first prize of Green Award 2012 from the Dept. of Environment and Forest, Government of Tamil Nadu. Thiru Md. Nasimuddin, I.A.S., Managing Director, TNPL received the award from Hon'ble Chief Minister of Tamil Nadu at Secretariat on 11th September 2012. This award has been bestowed on TNPL in recognition of its various initiatives taken to protect the environment by adopting environment friendly technologies in the process. This award also recognizes TNPL's proactive role in reducing the use of fossil fuels, increasing the green cover, encouraging non-conventional and energy efficient systems as well as recycling and reuse of solid & liquid wastes in the process.

### WIPRO TECHNOLOGIES

The list of top green Indian companies is never get completed without Wipro which climbed to the top five brand league in Green peace's 'Guide to Greener Electronics' ranking. 'Green Peace' is a global consortium dedicated to achieving advancement energy efficiency in data centers and business computing ecosystems. Wipro has held quickly to its commitment towards energy efficiency and had launched energy star compliant products in the global market.

### HCL INFO-SYSTEMS

HCL also had worked for a cleaner air, fresher water and fertile soil. HCL Info-systems have always tried to take green-concepts to the masses. HCL Info-systems are up with an initiative drive to train the customers and general public about the threats of e-waste. E-waste, is nothing but electronics-no-longer-usable. All of us might have a bunch of non-working CDs, earphones, mobile-phones, DVDs, cassette-players, power guzzling CRT monitors in store-room, and what not! Now is the time to dispose-off all this e-waste lying at your house, or office-cabin! All these things are properly managed by HCL.

### OIL AND NATURAL GAS COMPANY (ONGC)

India's one of the largest oil producers, ONGC, is all set to lead the green Indian company with energy efficient, green crematoriums that will soon replace the traditional wooden pyre across the country. ONGC's Mokshada Green Cremation initiative is saving 60 to 70% of wood and a fourth of the burning time per cremation.

### INDUSIND BANK

Green banking has been catching up as among the top Indian green initiatives ever since Indusind Bank had opened the first solar-powered ATM in India and pioneered an eco-savvy change in the Indian banking sector. The Indusind bank is planning for more such initiatives in addressing the challenges of climate change.

### IDEA CELLULAR

IDEA, paints India green with its national 'Use Mobile, Save Paper' and save the trees campaign. The company had organized Green Pledge campaigns various Indian metro cities where many came forward and pledged to save paper and trees and to protect the environment. IDEA has also set up some bus shelters with potted plants and tendril climbers to convey the green message in Mumbai.

**HERO HONDA MOTORS (NOW HERO MOTO CORP)**

Hero Moto Corp is one of the largest two-wheeler manufacturers in India and an equally responsible topgreen firm in India. The company's philosophy of continuous innovation in green products and solutions has played a key role in striking the right balance between business, mankind and nature.

**CHALLENGES AHEAD**

- Green products require renewable and recyclable material, which is costly.
- Requires a technology, which needs huge investment in R & D.
- Water treatment technology, which is too costly.
- Majority of the people are not aware of green products and their uses.
- Majority of the consumers are not willing to pay a premium for green products.

**SUGGESTIONS FOR THE SUCCESSFUL GREEN MARKETING**

Consumers want to do the right thing when it comes in protecting the environment and their health. Even in this economic climate, the green movement is gathering momentum, and it's hard to miss the deluge of ads introducing new green products from well-known national brands. Before you jump on the green bandwagon, make sure that the marketer takes these three essential steps:

**PROVE YOUR CLAIMS**

Today's shoppers are willing to dig deeper to get the real facts by examining consumer reports, reviews, testimonials and recommendations, as well as certification seals, labels and ingredient lists. All the marketing efforts, from the website to sales tools, public relations placements and social networking, must go the extra mile to provide verification of the green claims.

**GET PRICING RIGHT**

While many green shoppers are willing to pay extra price to do the right thing, the majority say price is very important in their purchase decisions. Consumers want quality products that are good for them and for the environment at a price that they can afford. Teen's ages 13 to 17 are the most price-conscious green shoppers, according to a survey from Generate Insight, an entertainment branding company. When rock bottom pricing is unachievable, great value can still add up to sales.

**OFFER PERSONAL BENEFITS**

Saving the planet is a big promise and a meaningful to many consumers. But it will have more teeth if it relates that claim to a personal benefit, such as improving one's health or saving money. For example, food that's organically grown means that fewer pesticides and herbicides that will damage the environment are used as an invaluable benefit. Yet the essential bottom line for many organic food shoppers is the assurance that fewer harmful chemicals will find their way into the bodies of their children and families.

**THE FUTURE OF GREEN MARKETING**

There are many lessons to be learned to avoid green marketing myopia, the short version of all this is that green marketing requires applying good marketing principles to make green products desirable for consumers. Business scholars have viewed it as a "fringe topic", given that environmentalism's acceptance of limits and conservation does not mesh well with marketing's traditional axioms as the marketer can. Evidence indicates that successful green products have avoided green marketing myopia by following the important principles.

- Consumer value position
- Calibration of consumer knowledge
- Credibility of Product Claim

**CONCLUSION**

Though the concept of green marketing in its infancy in India still there are a number of Indian companies which are involving in the race of green concept by following it in their business practices. In India near about 25% of the consumers have diverted towards environmental friendly products. Some of the alert business firms are entering into green marketing because of opportunity, social responsibility, Government pressure, competitive edge and reduced costs. Still the need is felt on the part of marketers to make the consumers understand the need for this environment oriented concept and the significant benefits of green marketing. Moreover consumers are also willing to spend more on the green products in order to maintain a clean and greener and healthier environment. But on the whole a lot more research is still required to fully explore some more potential in the so called green concept.

**REFERENCES**

1. Awards felicitations to TNPL, Viewed on February 7 2013, <http://www.tnpl.com/DisplayPage.aspx?file=awards.htm>
2. Chopra, S.Lakshmi, "Turning Over a New Leaf", Indian Management", Vol. 64, April 2007
3. D.L Jamge (2012), "Turning Towards the Green Marketing: A Need of the Hour in Indian Corporate Sector", Indian Research Journal, Volume 2, issue 8, pp. 2-3.
4. Jacquelyn Ottaman, Edwin R Stafford, Cathy L Hartman (2006) "Avoiding Green Marketing Myopia, Ways to Improve consumer appeal for environmentally preferable products", journal of Environment, Volume 48, Number 5, pp.27-34
5. Martin Charter, Ursula Tischner (2001), "Sustainable Solution: Developing Products and Services for the Future", Greenleaf Publishing Limited P 283.
6. Robert Delstorm (2011), "Green Marketing Management", South Western Cengage Learning, PP 8-13
7. [www.wikipedia.com](http://www.wikipedia.com), viewed on February 17, 2013. [http://en.wikipedia.org/wiki/Green\\_marketing](http://en.wikipedia.org/wiki/Green_marketing)

**EXCHANGE RATE MANAGEMENT: A CRITICAL LOOK INTO SEVERAL ALTERNATIVES**

**PURNASHREE DAS**  
**ASST. PROFESSOR**  
**DEPARTMENT OF COMMERCE**  
**GAUHATI UNIVERSITY**  
**GUWAHATI**

**SUJIT SIKIDAR**  
**PROFESSOR**  
**DEPARTMENT OF COMMERCE**  
**GAUHATI UNIVERSITY**  
**GUWAHATI**

**ABSTRACT**

*Each country has its own currency administered by a central banking authority. This is a sine qua non for any functional economy with financial markets. Inter-country trade demands use of a currency to facilitate conversion and settlement of trade obligations through an intermediary currency system. The validity of a currency is confined to the territory of its sovereign territory only. When one nation enters into trade relations with other nations for exchange of goods, services, invisibles and transfers, the concerned nations may adopt bilaterally for exchange of their respective currencies under a bilateral agreement. While on the other, if the two trading partner nations are not willing to accept the currency of its trading partner nation, they may demand for an alternative currency which is accepted universally all over the world. In order to arrive at that intervention currency which will be commonly accepted by all the nations the need for establishing an international financial arrangement for facilitating acceptance of a internationally recognized currency accepted by all arises. The present research enquiry has been undertaken with the objectives of tracing the stages and phases of exchange rate regimes alongwith evaluation of the alternative currency arrangements. Moreover, the influence of dollar in determining the exchange rate of a currency has also been examined in the light of emergence of some major currencies like Euro, Chinese Renminbi and Japanese Yen.*

**JEL CODE**

F31

**KEYWORDS**

Currency,Dollar,Euro,Pegging,Standard.

**INTRODUCTION**

Every independent nation has its defined territory, population, defence, governance and a currency. However, this poses a problem owing to variation of purchasing power of the individual currencies inter se, but at the same time, with regard to the intervention of a third currency. It forms a triangular relationship, e.g. India is importing gold from South Africa and in that connection while settling the transaction Rupee and Rand may not be mutually acceptable and as a result there is need for intervention of a third currency which is mutually agreeable to both the trading nations.

From the past experience, we have noticed the emergence of the Gold Standard, fixed exchange rate, floating exchange rate, managed float, pegged exchange rate, Dollar nominated exchange rate and freely convertible currency; none of these systems could satisfy the aspirations of the trading nations and central banking authorities. The job of central banking authorities has been becoming complex day by day with regard to maintaining the domestic interest rate, inflation rate, stabilization of monetary system on the one hand, and on the other, in the external front sustaining the interaction between domestic currency vis-a-vis other global currencies. With majority of the countries opening their doors for off-shore capital movements, there has been global capital flight not only for aid, grant and relief but more prominently, for putting in alternative investment avenues offering relatively a higher return. These complex elements have compounded the aberrations further owing to diplomatic alignment of the nations, forming a group of political entities, monetary unions, economic unions and trading zones.

In the background of these matters, the present researchers have ventured into undertaking a research enquiry with the following objectives.

**OBJECTIVES OF THE PRESENT STUDY**

The present research enquiry has been undertaken with the following objectives:

1. To trace the stages and phases of exchange rate regimes;
2. To examine the influence of dollar in determining the exchange rates;
3. To evaluate the alternative currency arrangements.

In consonance with Objective No.1 and 2, we shall now discuss the phases of the exchange rate regimes and the influence of dollar in determining exchange rates.

**EXCHANGE RATE REGIMES**

Every sovereign nation must have its own currency and the validity of the currency is confined to the territory of the sovereign nation. When one nation enters into trade relations with other nations for exchange of goods, services, invisibles and transfers, the concerned nations may adopt bilaterally for exchange of their respective currencies under a bilateral agreement. While on the other, if the two trading partner nations are not willing to accept the currency of its trading partner nation, they may demand for an alternative currency which is accepted universally all over the world. This is obvious for the reason that the purchasing power of each currency differs according to the economic strength of the nation concerned. Hence, the trading partner nations call for an arrangement for settlement of their respective exchange obligations through the medium of a foreign currency which commands international acceptability and respectability. That foreign currency and the rate at which it is exchanged in relation to a domestic currency of a trading nation is known as a foreign exchange and foreign exchange rate respectively. In order to arrive at that intervention currency which will be commonly accepted by all the nations the need for establishing an international financial institution whose currency may be regarded as a global currency accepted by all arises. Thereafter, we now explain the genesis of establishing such foreign exchange and the rate of foreign exchange agreed upon by the trading nations inter se from time to time.

The term exchange rate regime connotes the way in which a country manages its currency in respect to foreign currencies and the foreign exchange market. It is closely related to monetary policy and the two are generally dependent on the same factors.

The early system of exchange rate witnessed several developments before it emerged into the present state. In the early days, prior to the development of an international monetary system, trade payments were settled through barter, but there were many inconveniences and to overcome those difficulties traders began using metal such as gold or silver for settling payments. Subsequently, metal took the form of coin which had the stamp of the sovereign on the basis of weight and fineness giving birth to the specie commodity standard. These coins were full-bodied coins, meaning that their value was equal to the intrinsic value of the metal contained therein. With the elapse of time, the process of coin debasement started. Lower value metal was mixed with the coin with the result that the value of the metal came to be lower than the face value of the coin.

Since the specie commodity standard presupposes that coins of one country are acceptable by the other countries; but this is not possible for two reasons. The metallic worth of a coin in one sovereign may not contain the same weight of that particular metal in other sovereign, and secondly, the purchasing power of the metallic coin differs. Then came the gold standard which possessed much broader features than the specie commodity standard. It was originated in England and by 1870 it was widely adopted. The gold standard experienced a hey-day between 1870 and 1914 until the outbreak of the World War I. The gold standard was of five types namely:-

- Gold Coin Standard
- Gold Bullion Standard
- Gold Exchange Standard
- Gold Parity Standard
- Gold Reserve Standard

The limitations of the gold standard led to its demise which further led to large-scale oscillations in exchange rate. This required for the establishment of an international body that could help create an orderly exchange rate regime. Finally, at the Bretton Woods Conference it was resolved to create the International Monetary Fund (IMF). The IMF, that evolved a novel exchange rate system, was finally set up in 1945. Since the resultant system was the outcome of the Bretton Woods Conference, it is often termed as the Bretton Woods System.

### **FIXED EXCHANGE RATE SYSTEM**

The IMF articles provided that each member country was to set a fixed value- called the par value of its currency in terms of gold or the US Dollar. It was this par value that determined the exchange rate between any two currencies. Minor fluctuations, if any, within a narrow band of 1.0 above and below the established parities were expected to be corrected through the active intervention of the monetary authorities.

A fixed exchange rate, thus, is a type of exchange rate regime wherein a currency's value is matched to the value of another single currency or to a basket of other currencies, or to another measure of value, such as gold or SDR (Special Drawing Rights). As the reference value rises and falls, so does the currency pegged to it. In some cases, even fixed exchange rates are allowed to fluctuate between definite upper and lower bands, as fixed by the monetary authority of the country.

The Bretton Woods System did bring about stability in the exchange rate, but it could not go a long way. It was primarily the loss of confidence in the US Dollar following deterioration in the US Balance of Payment since late 1950s that hindered smooth functioning of the system. The US Dollar was greatly overvalued because of heavy American spending on Lyndon B. Johnson's Great Society and the Vietnam War. The American economy was also coming under serious inflationary pressures due to the aging economic infrastructure. The Marshall Plan which was proposed to provide relief to ailing European nations further deteriorated the situation, finally leading to its collapse by 1973.

Following the collapse of the Bretton Woods exchange rate system, the IMF experimented with several options of exchange rates systems which have been thereafter adopted by the 196 countries of the world as their own schemes of exchange rate regime. The following paragraphs give a brief idea of the exchange rate regimes followed presently by the economies of the world.

### **FLOATING- INDEPENDENT AND MANAGED**

An exchange rate is flexible or floating, when two countries agree to let international market forces determine the rate through the forces of supply and demand. In a floating exchange rate regime the exchange rate of a currency is established by the foreign-exchange market through supply and demand for that particular currency relative to other currencies. Thus, in such a system the market forces dictate the exchange rate between two currencies.

The floating rate system may be either independent or managed. The independent floating rate is also referred to as "clean" floating whereas the managed floating is known as "dirty" floating. In a clean float, a currency has a minimum of official intervention, except to maintain market stability, and its exchange rate is mostly determined by market demand. On the other hand, in case of dirty float varying amounts of official intervention is exercised for exchange rate stabilization.

Again the intervention may be direct or indirect. It is indirect intervention when the authority stabilizes the exchange rate through changing interest rates. On the other hand, in the case of direct intervention the monetary authority purchases and sells foreign exchange in the market which leads to the desired level of appreciation or depreciation of the currency.

Presently most of the economies of the world have adopted this system of exchange rate, with 50 countries including India and the USA going for the independent floating rate system while 27 countries having the managed floating rate system. There are several other alternatives of exchange rate regimes which have been discussed hereunder:

**PEGGING OF CURRENCY:** Sometimes a country may opt to tie its home currency to another strong currency or to a basket of currency, mostly widespread currency like the US Dollar or the Euro or to a currency with which it has a substantial part of its trade. The system results in stable trade payments. When a country has trade with several nations then pegging to a basket of currencies is suggested but such an arrangement often proves to be quite expensive. Pegging may also be to Special Drawing Rights (SDR) which itself is pegged to a basket of four currencies (US Dollar, Pound Sterling, Japanese Yen and Euro). The exchange rate is fixed in case of pegging, yet it is allowed to fluctuate within a narrow band of 1.0 above and below the central rate. Some countries provide for a higher band where such an arrangement is often referred to as "pegged exchange rates with horizontal bands".

At present, around 53 countries have adopted pegs of different kinds which shows that they are no less popular a system of exchange rate. Argentina, for example, had adopted this system in 1991 under which the exchange rate between its currency (the peso) and the US Dollar was fixed by law. However, following a crisis, Argentina abandoned the system and let its currency float in January 2002. Similarly, Malaysia and Thailand had pegged their home currencies' value to the US Dollar. However, during the Asian crisis in 1994-98 they were unable to maintain the peg and hence allowed their respective currencies to float against the Dollar.

**CRAWLING PEG:** It is a modified version of the pegged system wherein the peg is allowed to change gradually overtime to catch up with the changes in the market determined rates. In fact, it is a hybrid of fixed and flexible rate systems.

Presently, around 11 countries of the world have voted for the crawling peg system of exchange rate regime.

**TARGET -ZONE ARRANGEMENT:** Under such an arrangement, the intra-zone exchange rates are fixed. Sometimes, the member countries may even go for a common currency rather than having their own currencies.

The EMU countries have target-zone arrangement whereby they have a common currency Euro under the management of European Central Bank from January, 2002. So far 12 out of the 25 members of the European Union have adopted the Euro. Some 20 countries of Africa also have a scheme whereby they share a common currency.

Another peculiar arrangement has been adopted by Ecuador in the year 2000 whereby it had abandoned its local currency and adopted the US Dollar completely. This scheme was known as dollarisation. Ecuador had also given up the control over its money supply to the Federal Bank which is the central bank of the USA.

Thus, as observed from the aforementioned paragraphs, the international monetary system is an admixture of multiple exchange rate regimes and not a single exchange rate arrangement; but the dominance of Dollar has been incontestable throughout the exchange rate regimes. A perfectly fixed exchange rate system is non-existent and most of the rates change with the change in market forces. Even in the countries where fixed rates are advocated, the rates are usually allowed to fluctuate within certain bands because fixing the rates completely is literally impossible in the present globalised context.

### DISMANTLING OF DOLLAR DOMINANCE AS A GLOBAL CURRENCY

The need for a global currency in an economically integrated world is a well recognized fact. A global currency is one in which world transactions are valued and which traders are willing to hold and whose value does not fall dramatically over any period of time. Thus, a currency to be recognized as a reserve currency has to fulfill two conditions, viz.,

- It has to be liquid enough; and
- It has minimum risk of default.

Over the years the US Dollar has fulfilled all the conditions and has been accepted as an international currency. Till mid-1930s, the principal global currency was the Pound Sterling. However, devastated after the World War II, the UK and other European nations turned to the USA for reconstruction and rehabilitation financed by the US sponsored Marshall Plan. This led to a large demand for American goods and services, and the emergence of the Dollar as the 'principal reserve currency'.

Another reason why the US Dollar earns a dominant position in world currency market is that the US is the largest contributor to IMF which is supposed to be the world's last resort savings co-operative bank, where 188 shareholders put in their pennies and expect to draw in bad times.

1. Enormous public debts to GDP ratio in the USA;
2. Huge public debts to GDP ratio in the developed countries, around 80% over the period;
3. Excessive defence spending in counter-terrorism, but dependency on the US Dollar has been shaken since 1987 and the following may be attributed to the cause of the same:
4. War financing in Iraq, Afghanistan, etc.

Predictions about the demise of Dollar as a global currency have risen in the recent times, but they still appear to be premature. The obvious successors seem to be the Euro, the Yen or the Chinese Renminbi. But the debaters are putting more weightage to the IMF SDR, which is more of a unit of account than a currency, and whose value is itself linked to a basket of four currencies (Euro, Yen, Pound Sterling, US Dollar). Taking clue from Objective No. 3 we now try to venture into the emergence of other alternative arrangements.

### EMERGENCE OF EURO

After December, 1971, following the collapse of Dollar as a fixed unit of currency account, the European countries entered into an arrangement called Europe's Snake arrangement. In April, 1972, several European currencies were maintained within established limits of each other. The shape of snake was given by the established limits. However, the limit of currency exchangeability within the limits of the snake was difficult to be maintained. Some currencies opted out of the snake. They tried to realign their currencies with other currencies mainly Dollar. During this period, Europe witnessed the hardships. Finally, the European Monetary System (EMS) was put into operation since March, 1979. Under the EMS arrangement, the home currency value was linked to the European Currency Unit (ECU) as a unit of account. In this EMS the order of assigning weightage to the currency value was based on the following:

1. Weighted Average of exchange rate of the member nations;
2. A member nation's relative Gross National Product (GNP);
3. Activity within intra European trade;
4. Allowance for fluctuation within the currency of member nations not more than +/-2.25% and +/- 6% for selective currencies like the Italian Lira.

The ECU witnessed difficulties since fall 1992 because of the following reasons which finally culminated in the demise of the system. Meanwhile, Nobel Laureate Prof. Robert Mundell of Canada came out with a novel idea of introducing a single currency for many nations. With the demise of ERM, the coincidence provided a momentum for introducing a single European currency, Euro in January, 1999.

The first expectations of the displacement of Dollar came with the birth of the Euro as its significance in international transactions increased appreciably. In foreign exchange markets, the Euro's share has remained stable at around 20% of all transactions, compared with the Dollar's 44% and it accounted for a stable 25% of the holding of foreign exchange reserves by countries. Therefore, it is evident that the Euro has not been able to displace the Dollar as the global currency. This is truer in the context of the recent Euro-zone crisis which has further lessened the reliance on the currency.

### THE CASE OF CHINESE RENMINBI

The emerging markets and economies are growing fast; and among them China has been the fastest with Current Account surpluses and foreign exchange reserves amounting to about \$ 3 trillion of which it held around \$1.2 trillion in US treasuries. Hence, the Chinese Renminbi is seen as an increasingly possible alternative. The rise of China's economic power creates a case for the renminbi revaluation to make it a global reserve currency but there are several fundamental barriers to this. Despite the diagonal counter challenge to attain status of anchor currency, we arrive at the following issues in the course of our research enquiry:

1. The central banks across the world hesitate to hold Renminbi;
2. Yuan lacks dual convertibility which is a pre-requisite to be recognized as a global currency;

According to an estimate of the BIS, Basle, Renminbi's share in the global foreign exchange turnover was only 0.25% in 2007 and it was ranked 20th in the world and 5th among Asian emerging market currencies.

### THE CASE OF JAPANESE YEN

Although the Japanese economy is displaying remarkable growth coupled with sound current account surpluses, yet the Yen is playing only a very modest role in the Euro-deposit market. However, as an official reserve asset, the presence of yen is somewhat greater; but still its proportions do not qualify it as a world reserve currency.

### SDR AS A RESERVE CURRENCY

Besides the aforementioned currencies, the other contender of global currency is the IMF SDR. Created in 1969, the SDR was initially seen as a supplement reserve which could then meet shortages of the two then prevailing reserve assets: gold and Dollar. Initially, the value of SDR was set to gold (1 SDR = 0.888671 grams of gold = 1 \$); but with the collapse of the Bretton Woods System in 1973 its value has been linked to a basket of four currencies (Euro, Yen, Pound Sterling, US Dollar). It is an allocated asset for deriving tranche facilities by the member nations from the Fund owing to their BOP crisis.

The SDR can, at best, be regarded as a paper gold but cannot be introduced as a liquid global currency; it may somewhat be regarded as having a store value held by a member nation with the Fund. Hence, even the proposition of the SDR as a sole or principal global reserve currency is rejected.

### CONCLUSION

From our research analysis, we draw the following conclusions. No exchange system is absolutely perfect by itself. Gold standard could succeed partially to meet the needs for exchange of currency during the reign of capitalism, but not outside. Dollar, however, could meet the expectation as an acceptable international currency for exchange. Subsequently, Euro also could not be a perpetual threat to the existing US Dollar on account of debt crisis in Europe and weakening of

Euro within Euro zone itself. China's Renminbi also attempted to gain the position of a global reserve currency by aligning its current account surpluses with established global currency nations, but that was not accepted as such by the member nations of the IMF. Even the SDR which is the most popular alternative has been rejected on several grounds.

Hence, in the absence of any other currency which could surpass the indomitable presence of the Dollar, it continues to be a run-after unit of account, to remain as an anchor currency as well a global reserve currency. This may be a necessary but not a sufficient condition.

#### REFERENCES

1. C.P.Chandrashekhkar (2010), "Global Imbalances and the Dollar's Future", Economic and Political Weekly, June 5, 2010, Vol. XLV No. 23, pp 47-57
2. <http://www.futureagenda.org/pg/cx/view/344>
3. Madura Jeff (eds), "International Financial Management". USA: Thomson-South Western, 7th Edition, pp. 64-107
4. Manoj Pant, "The Reserve Currency Wrangle", The Economic Times dated 13th May, 2011
5. Prabhat Patnaik, "Gold Standard and After", The Telegraph dated 8th August, 2012
6. R.K.Raul (2010), "World Anchor Currency: Is it losing ground" Indian Journal of Accounting, Vol. XL II (1), December, 2011, pp 80-85, IAA Ujjain
7. Vyuptakesh Sharan (eds), "International Financial Management". New Delhi: PHI Learning, 5th Edition, pp-42-62



# AN EMPIRICAL STUDY OF SERVQUAL, CUSTOMER SATISFACTION AND LOYALTY IN INDIAN BANKING SECTOR

**RAVINDRA KUMAR KUSHWAHA**  
RESEARCH SCHOLAR  
DEPARTMENT OF MANAGEMENT  
JAGAN NATH UNIVERSITY  
JAIPUR

**DR. MADAN MOHAN**  
PROFESSOR  
DEPARTMENT OF MANAGEMENT  
JAGAN INSTITUTE OF MANAGEMENT STUDIES  
NEW DELHI

**DEBASHISH MANDAL**  
ASST. PROFESSOR  
FACULTY OF CSE & IT  
SURAJMAL COLLEGE OF ENGINEERING & MANAGEMENT  
KICHHA

## ABSTRACT

Service quality has a significant impact on a bank's success and performance. In Indian banking industry, customers perceive very little difference in the banking products offered by banks dealing in services as any new offering is quickly matched by competitors. The major aim of the research paper is to measure the quality of service offered by private banks operating in India. Moreover, it tries to investigate the relationship between service quality, customer satisfaction and loyalty. The five dimensions of SERVPERF model i.e. reliability, assurance, tangibility, empathy and responsiveness were used to measure the quality of service offered by the private banks. In order to achieve the aims, both primary and secondary sources of data were used. The primary data were collected through structured questionnaire. In this study, the research design will be Descriptive Research Design. The research findings indicate offering high quality service increase customer satisfaction, which in turn leads to high level of customer commitment and loyalty.

## KEYWORDS

Customer Satisfaction, Indian banking, Loyalty, SERVQUAL, SERVPERF.

## INTRODUCTION

India was a latecomer to economic reforms, embarking on the process in earnest only in 1991, in the wake of an exceptionally severe balance of payments crisis. The economic liberalization of the financial sector started in 1991 laid a foundation for the formation and expansion of banks in India. This coupled with rapid technological advancement and improved communication systems, have contributed to the increasing integration and resemblance amongst banks in the financial sector. As a result, Indian banks are now faced with very high and intense competition (Harvey, 2010). Banks operating in India is consequently put into lot of pressures due towards increase in competition. Various strategies are formulated to retain the customer and the key of it is to increase the service quality level. Service quality is particularly essential in the banking services context because it provides high level of customer satisfaction, and hence it becomes a key to competitive advantage (Ahmossawi, 2001). In addition, service quality has a significant impact on a bank's success and performance (Mouawad and Kleiner 1996). Nowadays, service quality has received much attention because of its obvious relationship with costs, financial performance, customer satisfaction, and customer retention. Different meaning could be attached to the word quality under different circumstances. It has been defined in a different way by various bank professionals and research scholars. Some of the prominent definitions include "Quality is predictability" (Deming, 1982), "conformance to specification or requirements" (Crosby, 1984), "fitness for use" (Juran, 1988) and "customer's opinion" (Feigenbaum, 1945), "Quality is like a Human value" (Kushwaha R.K & Mandal. D, 2013). These initial efforts in defining quality originated largely from the Banking sector. A solid foundation in defining and measuring service quality was emanated in the mid eighties by Gronroos (1984) and Parasuraman et al.(1985).

**TABLE 1: STUDIES CONDUCTED BY ADOPTING SERVPERF**

Authors	Country
Beerli et. al (2004)	Spain
Wang et. al (2003)	China
Lee and Hwan (2005)	Taiwan
Zahoor (2011)	Pakistan
Mensah (2010)	Ghana
Suliman (2011)	Jordan

They were amongst the earliest scholars laid down the foundation for the definitions as well as development of service quality. Defining service quality is difficult as compared to product quality due to some features unique to services including intangibility, inseparability, heterogeneity and perishability (Chang and Yeh, 2002). In presence of these limitations, Parasuraman come up with a comprehensive way of defining service quality.

## REVIEW OF LITERATURE

### SERVICE QUALITY

Service quality is a concept that has aroused considerable interest and debate in the research literature because of the difficulties in both defining it and measuring it with no overall consensus emerging on either (Wisniewski, 2001). There are a number of different "definitions" as to what is meant by service quality. One that is commonly used defines service quality as the extent to which a service meets customers' needs or expectations (Lewis and Mitchell, 1990;

Dotchin and Oakland, 1994a; Asubonteng et al., 1996; Wisniewski and Donnelly, 1996). Service quality can thus be defined as the difference between customer expectations of service and perceived service.

If expectations are greater than performance, then perceived quality is less than satisfactory and hence customer dissatisfaction occurs (Parasuraman et al., 1985; Lewis and Mitchell, 1990). Always there exists an important question: why should service quality be measured? Measurement allows for comparison before and after changes, for the location of quality related problems and for the establishment of clear standards for service delivery. Edvardsen et al. (1994) state that in their experience, the starting point in developing quality in services is analysis and measurement. The SERVQUAL approach, which is studied in this paper, is the most common method for measuring service quality.

#### CUSTOMER SATISFACTION

Early concepts of satisfaction research have defined satisfaction as a post choice evaluative judgment concerning a specific purchase decision (Churchill and Sauprenant 1992; Oliver 1980). Most researchers agree that satisfaction is an attitude or evaluation that is formed by the customer comparing their pre-purchase expectations of what they would receive from the product to their subjective perceptions of the performance they actually did receive (Oliver, 1980). Further, "Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations". (Kotler, 2000, p.36). Customer satisfaction is a collective outcome of perception, evaluation and psychological reactions to the consumption experience with product/service. (Yi, 1990).

#### SERVICE QUALITY AND CUSTOMER SATISFACTION

Kotler and Armstrong (2012) preach that satisfaction is the post-purchase evaluation of products or services taking into consideration the expectations. Researchers are divided over the antecedents of service quality and satisfaction. Whilst some believe service quality leads to satisfaction, others think otherwise (Ting, 2004). The studies of Lee et al. (2000); Gilbert and Veloutsou (2006); Sulieman (2011) and Buttle (1996) suggest service quality leads to customer satisfaction. To achieve a high level of customer satisfaction, most researchers suggest that a high level of service quality should be delivered by the service provider as service quality is normally considered an antecedent of customer satisfaction. As service quality improves, the probability of customer satisfaction increases. Quality was only one of many dimensions on which satisfaction was based; satisfaction was also one potential influence on future quality perceptions (Clemes, 2008). Service quality is an important tool to measure customer satisfaction (Hazlina et al., 2011). Empirical studies show that the quality of service offered is related to overall satisfaction of the customer. According to Jamal and Anastasiadou (2009), reliability, tangibility and empathy positively related with customer satisfaction. Sulieman (2011) found that reliability, tangibility, responsiveness and assurance have significant and positive relationship with customer satisfaction. Meanwhile empathy was found to have a significant and negative effect on customer satisfaction. Moreover, the result of Ravichandran et al. (2010) indicates responsiveness is the only significant dimension of service quality that affects the satisfaction of customers positively.

#### CUSTOMER SATISFACTION AND LOYALTY

Both the service management and the marketing literatures suggest that there is a strong theoretical foundation for an empirical exploration of the linkages between customer satisfaction and customer loyalty. According to these literatures, customer satisfaction with the service experience will lead to higher level of customer loyalty. Horstmann (1998), states that there is a strong and positive relationship between customer satisfaction and loyalty. A satisfied customer is six times more likely to repurchase a product and share his experience with five or six other people (Grönroos, 2000; Zairi, 2000); further unsatisfied customer can banish more business from the organization than ten highly satisfied customers do (Mohsan, 2011). With higher customer satisfaction the level of loyalty increases Tee et al. (2012) found a significant positive relationship between customer satisfaction and customer loyalty. Other several studies have indeed found satisfaction to be a leading factor in determining loyalty (Sit et al., 2009; Mensah, 2010; He and Song, 2009). These studies have concluded that there is a significant relationship between customer satisfaction and loyalty. They assert that high level of customer satisfaction will result in increased loyalty for the firm and is positively associated with repurchase intentions, positive words of mouth and profitability. On the basis of the above empirical literatures, customer satisfaction is indicated as a foremost determinant of customer loyalty.

In Indian banking industry, customers perceive very little difference in the banking products offered by banks dealing in services as any new offering is quickly matched by competitors. There are disappointments of customers over the service offered and the available services don't match with the expectation of the customer. This study addresses all these issues and tries to identify the dimension of quality which achieved least together with its implication on customer satisfaction and loyalty.

#### SERVQUAL METHODOLOGY

Clearly, from a Best Value perspective the measurement of service quality in the service sector should take into account customer expectations of service as well as perceptions of service. However, as Robinson (1999) concludes: "It is apparent that there is little consensus of opinion and much disagreement about how to measure service quality". One service quality measurement model that has been extensively applied is the SERVQUAL model developed by Parasuraman et al. (1985, 1986, 1988, 1991, 1993, 1994; Zeithaml et al., 1990). SERVQUAL as the most often used approach for measuring service quality has been to compare customers' expectations before a service encounter and their perceptions of the actual service delivered (Grönroos, 1982; Lewis and Booms, 1983; Parasuraman et al., 1985). The SERVQUAL instrument has been the predominant method used to measure consumers' perceptions of service quality. It has five generic dimensions or factors and are stated as follows (van Iwaarden et al., 2003):

- (1) Tangibles:- Physical facilities, equipment and appearance of personnel.
- (2) Reliability:- Ability to perform the promised service dependably and accurately.
- (3) Responsiveness:- Willingness to help customers and provide prompt service.
- (4) Assurance (including competence, courtesy, credibility and security):- Knowledge and courtesy of employees and their ability to inspire trust and confidence.
- (5) Empathy (including access, communication, understanding the customer):- Caring and individualized attention that the firm provides to its customers.

In the SERVQUAL instrument, 22 statements measure the performance across these five dimensions, using a seven point likert scale measuring both customer expectations and perceptions (Gabbie and O'Neill, 1996). In making these measurements, respondents asked to indicate their degree of agreement with certain statements on liker type scale. For each item, a gap score (G) is then calculated as the difference between the perception score (P) and the expectation score (E). The greater the gap scores the higher the score for perceived service quality. It is important to note that without adequate information on both the quality of services expected and perceptions of services received then feedback from customer surveys can be highly misleading from both a policy and an operational perspective.

The SERVPERF model was carved out of SERVQUAL by Cronin and Taylor in 1992. SERVPERF measures service quality by using the perceptions of customers. Cronin and Taylor argued that only perception was sufficient for measuring service quality and therefore expectations should not be included as suggested by SERVQUAL (Baumann et al, 2007). The SERVPERF scale is found to be superior not only as the efficient scale but also more efficient in reducing the number of items to be measured by 50% (Hartline and Ferrell, 1996; Babakus and Boller, 1992; Bolton and Drew, 1991). In this study, the SERVPERF scale is used to measure service quality in retail banking. Many studies have been conducted by adopting the SERVPERF model; some of the most relevant are given in Table 1.

#### OBJECTIVE OF THE STUDY

- To measure the quality of service offered by private banks operating in Kanpur city (India).
- To investigate the relationship between service quality, customer satisfaction and loyalty.

#### HYPOTHESIS

This research is constructed to address the following hypotheses:

- There is a strong relationship between service quality dimensions and customer satisfaction in banking services.
- There is relationship between service quality and customer satisfaction in banking services.
- There is relationship between customer satisfactions and loyalty in banking services.

## RESEARCH METHODOLOGY

### RESEARCH DESIGN

Research Design is a map or blueprint according to which the research is to be conducted. In the present study, the research design will be Descriptive Research Design. Descriptive research includes survey and fact finding enquiries. The research design specifies the method of data collection and data analysis.

### DATA COLLECTION METHOD

A research design is an arrangement of conditions for collection and analysis of Data in a manner that aims to combine relevance to the research purpose with Economy in procedure. It constitutes the blueprint for collection, measurement and analysis of data.

**a) Primary data:** These are those data which are collected afresh and for the first time, and thus happen to be original in character. We will be using the structured questioners.

**b) Secondary data:** These are those which have already been collected by someone else and which have already been passed through the statistical process. We will collect it from the sources like internet, published data etc.

### SAMPLING PLAN

#### SAMPLING TECHNIQUE

First step in sampling plan is to decide the Sampling Technique, Universe or Population.

We will be going to choose the sample according to the “**Convenience Sampling**”. Once the universe is decided the researcher must concern himself to find:

- What sampling unit should be studied?
- What should be the sampling size?
- What sampling procedure should be used?

### UNIVERSE

The first step in developing any sample design is to clearly define the set of objects, technically called the universe. In present research, universe will be the ultimate customers of the private banks in Kanpur city (Eastern Uttar-Pradesh).

### GEOGRAPHICAL LOCATION

The present research will be conducted in Kanpur city.

### SAMPLING UNIT

The basic thing is to be decided in sampling unit who is to be surveyed. In the present study, the sampling units will be the respondents who are the ultimate customer of the banks i.e. All population ranging between the ages of 16 to 50 and above.

### SAMPLE SIZE

The second issue is to be decided is ‘The Sample Size’. The whole of the universe can’t be studied in a single research work. The researcher has to select a relevant fraction of the population or universe. In the present study the sample size will be of 345 Respondents.

## DATA ANALYSIS & INTERPRETATION

The results of Table 2 provide data on demographic characteristics of the respondents. It includes variables like age, gender, educational qualifications, and frequency of use. The sample includes 345 customers of Indian private banks. Females make 33% of the customers on the other hand males respondents represented (67%) of the survey population. The largest group of respondents (58%) is aged between 31 and 55. The next largest group (34%) is aged between 16 and 30. Smaller groups of respondents are aged above 50 (8%). With regard to educational level; respondents with SSC and below make 16% of the customers. While first degree holders are the largest group of respondents comprising 69% of the respondents. Finally, holders of postgraduate degrees make 15 of the customers. Regarding the frequency of use, majority of the respondent are not frequent users (51 and 46%); they use the service at most once in a month.

TABLE 2: CHARACTERISTICS OF THE RESPONDENTS

Frequency	Percentage		
<b>1. Gender</b>			
Male		214	67.0
Female		131	33.0
<b>Total</b>		<b>345</b>	<b>100.0</b>
<b>2. Age</b>			
16-30		133	34.0
31-50		192	58.0
Above 50		20	8.0
<b>Total</b>		<b>345</b>	<b>100.0</b>
<b>3. Educational Background</b>			
SSC and Below		89	16
Undergraduate		219	69
Postgraduate and above		37	15
<b>Total</b>		<b>345</b>	<b>100.0</b>
<b>4. Frequency of use</b>			
Daily		0	0
Weekly		8	3
Monthly		163	46
Other		174	51
<b>Total</b>		<b>345</b>	<b>100.0</b>

Table 3 shows the mean score for the five dimensions of service quality. The highest mean is scored by tangibility followed by assurance and reliability. The least mean score is for empathy followed by responsiveness.

According Table 3, the tangibility dimension of service quality is carried out superior to the other four dimensions with a mean score of 3.50. This indicates the private banks are performing at satisfactory level in possessing good looking equipments, visually appealing materials and neat appearing employees. The second dimension as per the rating of the customers is assurance with a mean score of 3.18. The customer perceived that the banks are performing better in having knowledgeable and courteous employees and providing secure and trustworthy service. The third dimension is reliability with 3.10 mean score. The least performed dimensions are responsiveness and empathy with a mean score of 2.73 and 2.71 respectively. As

per the response of the customers, private banks are not good in delivering responsive and empathic service. This indicates that there are weaknesses in helping customers, responding to customer inquiries, delivering prompt service and understanding individual customer needs.

TABLE 3: MEAN SCORE FOR SERVICE QUALITY DIMENSIONS

Service quality dimensions	Mean score	Standard deviation
Tangibility	3.5000	0.53967
Reliability		3.1000 0.74598
Responsiveness		2.7250 0.55327
Assurance		3.1850 0.65603
Empathy		2.7050 0.55132

According to the Table 4, there is a significant positive relationship between the five dimensions of service quality and customer satisfaction, the highest correlation is between empathy and customer satisfaction (0.986); followed by responsiveness (0.918), tangibility (0.898) and assurance (0.896) respectively. The weakest correlation is between reliability and customer satisfaction (0.742). Because the correlation was positive, service quality and customer satisfaction is positively related, which means the better service quality was the higher customer satisfaction. Accordingly, the most important service quality dimension that affects customer satisfaction is empathy, which goes to prove that empathy perceived as a dominant service quality followed by responsiveness; indicating improvements in employees' customer satisfaction levels were significant.

TABLE 4: CORRELATIONS RESULTS OF SERVICE QUALITY AND CUSTOMER SATISFACTION

Variables	Customer satisfaction	Tangibility	Reliability	Responsiveness	Assurance
Tangibility	0.898	-----	-----	-----	-----
Reliability	0.742	0.776	-----	-----	-----
Responsiveness	0.918	0.679	0.482	-----	-----
Assurance	0.896	0.725	0.801	0.783	-----
Empathy	0.986	0.748	0.787	0.768	0.823

Table 5 indicates empathy, responsiveness and assurance dimension of service quality have a significant influence on customers' satisfaction at 95% confidence level. Conversely, reliability and tangibles dimension have no significant influence on customers' satisfaction. The significant service quality factors have been included for the establishment of the function. The established regression function is:

$$Z = -0.115 + 0.052X_1 + 0.039X_2 + 0.166X_3 + 0.145X_4 + 0.721X_5$$

TABLE 5: REGRESSION RESULTS OF SERVICE QUALITY AND CUSTOMER SATISFACTION

Model	Unstandardized Coefficients	Standardized Coefficients		t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.115	0.079	-----	1.457	0.219
Tangibility	0.052	0.023	0.052	2.245	0.0088
Reliability	0.039	0.074	0.038	0.792	0.473
Responsiveness	0.166	0.145	0.155	1.143	0.017
Assurance	0.145	0.048	0.143	3.019	0.039
Empathy	0.721	0.153	0.730	4.712	0.009
Adjusted R square	0.907				
F: 18.566*					

The regression results indicate all the service quality dimensions (tangibility, reliability, responsiveness, assurance and empathy) combined significantly influence the satisfaction of customers. The adjusted R<sup>2</sup> of 0.907 indicates 90.7% of the variance in customer satisfaction can be predicted by the service quality offered by the private banks (Table 6). According McIlroy and Barnett (2000) an important factor to be considered when developing a customer loyalty program is customer satisfaction. Satisfaction is a critical scale of how well customers' needs and demands are met while customer loyalty is a measure of how likely a customer is to repeat the purchases and engage in relationship activities.

TABLE 6: REGRESSION RESULTS OF CUSTOMER SATISFACTION AND LOYALTY

Model	Unstandardized Coefficients	Standardized Coefficients		t	Sig.
	B	Std. Error	Beta		
(Constant)	2.047	0.341	-----	5.998	0.000
Satisfaction	0.446	0.113	0.814	3.964	0.004
Adjusted R square	0.620				
F: 15.713*					

The above table displays the relationship between customers satisfaction with their loyalty to the bank. In order to test the relationship, linear regression is used. The overall satisfaction of customers seems to have statistically significant and positive effect on their loyalty. The adjusted R<sup>2</sup> of 0.62 indicates 62% of customer satisfaction is associated with their loyalty. This indicates customer satisfaction plays an important role in enhancing customer loyalty in Ethiopian private banks the area where banks need to work in order to improve customer perception of service quality. Counter staff need to be continuously trained with proper skill of providing caring and prompt service. Moreover, staff that are committed in implementing quality services and gained recognitions from customers should be given better rewards.

The results of this study shows all service quality dimensions are positively correlated with customer satisfaction indicating quality banking service as a prerequisite for establishing and having a satisfied customers. According to the correlation result, empathy and responsiveness are the dominant determinants of customer satisfaction. This indicates that banks required initializing provision of caring, individualized attention given to the customers. Moreover, managers should encourage service recovery and problem solving attitude prevailing in their banks. The positive significant coefficient for customer satisfaction and loyalty relationship suggests higher customer satisfaction on banking service and the higher the loyalty of customers towards the banks. Thus, satisfied customer is important in developing a loyal customer. Therefore organizations should always strive to ensure that their customers are very satisfied. Customer loyalty and retention is potentially one of the most powerful weapons that financial institutions of can employ in their fight to gain a strategic advantage and survive in today's ever-increasing competitive environment. Moreover, banks need to develop strategies that enhance loyalty of their customers.

## DISCUSSION & SCOPE OF THE STUDY

In order to assess the service quality performance, the five dimensions of service quality were used. Among the five dimensions, the banks were found to be superior in providing appealing service environment. The banks are good in tangibility, reliability and assurance dimensions. The mean score values are

lowest for responsiveness and empathy indicating inferior performance of these banks in those dimensions of service quality. These are the area where banks need to work in order to improve customer perception of service quality. Counter staff need to be continuously trained with proper skill of providing caring and prompt service. Moreover, staff that are committed in implementing quality services and gained recognitions from customers should be given better rewards. The results of this study shows all service quality dimensions are positively correlated with customer satisfaction indicating quality banking service as a prerequisite for establishing and having a satisfied customers. According to the correlation result, empathy and responsiveness are the dominant determinants of customer satisfaction. This indicates that banks required initializing provision of caring, individualized attention given to the customers. Moreover, managers should encourage service recovery and problem solving attitude prevailing in their banks. The positive significant coefficient for customer satisfaction and loyalty relationship suggests higher customer satisfaction on banking service and the higher the loyalty of customers towards the banks. Thus, satisfied customer is important in developing a loyal customer. Therefore organizations should always strive to ensure that their customers are very satisfied. Customer loyalty and retention is potentially one of the most powerful weapons that financial institutions can employ in their fight to gain a strategic advantage and survive in today's ever-increasing competitive environment. Moreover, banks need to develop strategies that enhance loyalty of their customers.

## CONCLUSION

The main aim of the study was to assess the service quality of private banks and its impact on customer satisfaction. The study also tried to test the relationship that exists between customer satisfaction and their loyalty. The mean score values for service quality dimensions was between 2.6 and 3.4. This indicates that improvements of service quality should be conducted on all the five service quality dimensions, especially the dimensions of responsiveness and empathy. This study also found a positive relationship between all service quality dimensions and customer satisfaction. Accordingly, the results of this research paper confirmed the theory of literatures regarding the relationship between service quality dimensions and customer satisfaction. Although this research provides some significant insights into service quality in Indian banking industry, there is still a chance to extend the findings to gain a more comprehensive understanding of the nature of banking services. The future research may highlight the service quality in banking in total, comparative analysis on SERVPERF scores in different types of banks and comparative analysis on SERVQUAL and SERVPERF scores in banking industry. The future research may be directed to analyze the application of SERVPERF to other service industries by incorporating other dimensions of service quality.

## REFERENCES

1. Almossawi M (2001), "Bank selection criteria employed by college students in Bahrain: an empirical analysis" *International Journal of Banking Market* 19(3): 115-125.
2. Babakus E & Boller GW (1982), "An Empirical Assessment of the SERVQUAL Scale" *Journal of business research* 24(3): 253 – 68.
3. Baumann C (2007), "Predication of Attitude and Behavioral Intentions in Retail Banking, *International Journal of Banking Market* 25(2): 102 – 11.
4. Beerli A (2004), "A Model of Customer Loyalty in the Retail Banking Market" *European Journal of Marketing* 38(1/2): 253 – 275.
5. Benito E (2008), "Size, growth and banks Dynamics" Banco de Espana working paper 0801.
6. Bolton Ruth N, James Drew H (1991), "A Longitudinal Analysis of the Impact of Service Changes on Customer Attitudes" *Journal of Marketing* 55 (1): 1991, 1-10.
7. Buttle F (1998), "SERVQUAL: Review, Critique, Research Agenda" *European Journal of Marketing*, 30 (1), 8 - 32
8. Chang YH & Yeh, CH (2002), "A survey analysis of service quality for domestic airlines" *European Journal of operation research* 139 (2002): 166-177.
9. Clemes MD (2008), "An empirical analysis of customer satisfaction in international air travel" *Innovative Marketing*, 4: 49-62.
10. Cronin Joseph Jr J & Taylor S (1992), "Measuring Service Quality: A Reexamination and Extension," *Journal of Marketing*, Vol. 58
11. Crosby Philip B (1984), "Quality without Tears: The Art of Hassle Free Management" New York, McGraw-Hill.
12. Deming WE (1982), "Out of Cruses" Cambridge, Mass MIT Center for Advance Engineering Study".
13. Feigenbaum AV (1945), "Quality control: principles, practice and administration; an industrial management tool for improving product quality and design and for reducing operating costs and losses" McGraw-Hill industrial organization and management series, New York, McGraw-Hill.
14. Gilbert GR & Veloutsou C (2006), "A Cross-Industry Comparison of Customer Satisfaction" *Journal of Service Marketing* 20(5): 298-308.
15. Gronroos C (1978), "A Service-Orientated Approach to Marketing of Services" *European Journal of Marketing* 12(8): 588 – 601.
16. Gronroos C (1984), "A service quality model and its market implications" *European Journal of Marketing* 18(4): 36-44.
17. Gronroos, C (2000), "Service Management and Marketing: A Customer Relationship Approach" Chichester: John Wiley.
18. Hansson, Gote (1995), "Ethiopia 1994: economic achievements and reform problems" (Institute for Economic Research, Lund University, Macroeconomic Studies 61/95)
19. Hartline, Michael D & Ferrell OC (1996), "The Management of Customer-Contact Service Employees: An Empirical Investigation" *Journal of Marketing* 60 (11): 52-70.
20. Harvey (2010), "Banking Reform in Ethiopia" Institute Of Development Studies, IDA Working paper 37.
21. Hazlina (2011), "Impacts of service quality on customer satisfaction: Study of Online banking and ATM services in Malaysia" *International Journal of Trade Economic Finance* 2(1).
22. He Y, Song H (2009), "A Mediation Model of Tourists' Repurchase Intentions for Packaged Tour Services" *Journal of Traveling Research* 47(3): 317 – 31.
23. Horstmann R (1998), "Customer Satisfaction and Loyalty: an empirical assessment in the service industry" *Journal of Application Management Entrepreneurship* 4: 39 -54.
24. Jamal A & Anastasiadou K (2009), "Investigating the Effects of Service Quality Dimensions and Expertise on Loyalty" *European Journal of Marketing* 43: 398-420.
25. Juran JM (1986), "The Quality Trilogy" *Quality Progress* 19(8): 19-24.
26. Kotler P & Armstrong G (2012), "Principles of Marketing" 14th Edition, New Jersey, USA; Pearson Education Inc.
27. Lee MC & Hwan IS (2005), "Relationships among Service Quality" Customer Satisfaction and Profitability in the Taiwanese Banking Industry, *International Journal of Management* 22(4): 635-648.
28. Lee MC (2000), "The determinants of perceived service quality and its relationship with satisfaction" *Journal of Services Marketing*, Vol. 14, No. 3 2000, pp. 217-231.
29. McLroy A & Barnett S (2000), "Building Customer Relationships: Do Discount Cards Work?" *Managing Service Quality*; 10(6), 347-355.
30. Mensah (2010), "Customer Satisfaction in the banking industry: A comparative Study of Spain and Ghana Unpublished PhD Dissertation.
31. Mohsan F (2011), "Impact of Customer Satisfaction on Customer Loyalty and Intentions to Switch: Evidence from Banking Sector of Pakistan" *International Journal of Business and Social Science* 2(16).
32. Mouawad M & Kleiner B (1996), "New developments in customer service training" *Managing Service Quality*, 6(2): 49-56.
33. Parasuraman A, Berry LL & Zeithaml VA (1985), "A conceptual model of service quality and its implication for future research", *Journal of Marketing* 49(4): 41-50.
34. Parasuraman A, Zeithaml VA & Berry L (1988), "SERVQUAL: a multiple-item scale for measuring customer perceptions of service quality" *Journal of Retailing* 64: 12-40.
35. Ravichandran K (2010), "Influence of Service Quality on Customer Satisfaction" Application of SERVQUAL Model, *International Journal of Business Management* 5: 117-124.

36. Shanka MS (2012), "Bank service quality, customer satisfaction and loyalty in Ethiopian banking sector" full length research paper; Hawassa University, School of management and Accounting, Hawaasa, Ethiopia.
37. Siu NYM & Mou JCW (2005), "Measuring Service Quality in Internet Banking: The Case of Hong Kon" Journal of International Consumer Market 17(4): 99 – 116.
38. Sulieman (2011), "Banking Service Quality Provided by Commercial Banks and Customer Satisfaction" American Journal of Scientific Research, ISSN 1450-223X Issue 27(2011), pp. 68-83.
39. Tee (2012), "The Effects of Service Quality, Customer Satisfaction on Re-patronage Intentions of Hotel Existing Customers" International Journal of Management Administration Science 1(8).
40. Ting DH (2004), "Service Quality and Satisfaction Perceptions: Curvilinear and Interaction Effect" The International Journal of Banking Market 22(6): 407 – 420.
41. Wang (2003), "The Antecedents of Service Quality and Product Quality and their influences on Bank Reputation: Evidence from Banking Industry in China" Managing Service Quality, 13: 72 – 83.
42. Zahoor (2011), "SERPERF Analysis in the Banking Services" Unpublished Master thesis, Karachi Institute of Economics and Technology.
43. Zairi M (2000), "Managing Customer Dissatisfaction through Effective Complaint Management Systems" The TQM Magazine, 12(5): 331-335.
44. Zeithaml VA, Berry LL & Parasuraman A (1996), "The behavioral consequences of service quality", Journal of Marketing 60: 31-46.



**CHINA'S CURRENCY POLICY: WINNERS AND LOSERS OF AN INDIRECT EXPORT SUBSIDY**

**GHULAM MUSTAFA SHAMI**  
**RESEARCH SCHOLAR**  
**SUPERIOR UNIVERSITY**  
**LAHORE**

**DR. MUHAMMAD RAMZAN**  
**DIRECTOR LIBRARIES**  
**LAHORE UNIVERSITY OF MANAGEMENT SCIENCES**  
**LAHORE**

**AFAQ RASOOL**  
**RESEARCH SCHOLAR**  
**SUPERIOR UNIVERSITY**  
**LAHORE**

**ABSTRACT**

*China's government policy of intervening in currency markets to limit or stop the appreciation of its currency, the renminbi (RMB) or yen, against the U.S. dollar and other currencies has become an issue of concern for many US policy makers. They charge that China's currency policy is intended to make its exports significantly less expensive, and its imports more expensive. Critics contend that the RMB is significantly undervalued against the dollar and that this has been a major contributor to the large annual U.S. trade deficits with China and the loss of U.S. jobs in recent years. Many legislation and bills have been passed in Congress that seeks to address the effects of undervalued currencies (which are largely aimed at China). Some analysts contend that China's industrial policies, its failure to adequately protect U.S. intellectual property rights, and its unbalanced economic growth model, are some serious challenges to U.S. economy. The effects of the global economic slowdown have refocused attention on the need to reduce global imbalances especially between China and the United States. Many economists contend that China should take steps to rebalance its economy by lessening its dependence on exports while boosting the level of domestic consumer demand.*

**KEYWORDS**

china, Currency policy.

**1. OVERVIEW OF THE CURRENCY ISSUE**

irect intervention of china's government in money market to limit the appreciation of its currency, the renminbi (RMB), or yuan, against the dollar and other currencies has become a major source of problem with many of its trading partners, especially the United States. Analysts contend that China deliberately "manipulates" its currency to get unfair trade advantages over its trading partners. They also said China's undervalued currency has been a major factor in the large annual U.S trade deficits with China and has contributed to widespread job losses in the United States, especially in manufacturing. In February 2010 President Obama, stated that China's undervalued currency puts U.S. firms at a "huge competitive disadvantage," and also concluded that China needed to "go ahead and move towards a market-based system for their currency" and that the United States and other countries felt that "enough is enough." From July 2005 to July 2008, China's central bank allowed the RMB to appreciate against the dollar by about 21%. However, once the effects of the global economic crisis became apparent in 2008, China halted appreciation of the RMB in an effort to help Chinese industries dependent on trade. From July 2008 to about mid-June 2010, China kept the exchange rate of the RMB relatively constant at 6.83 yen to the dollar. On June 2010, China resumed appreciation of the RMB, and allowed the RMB/dollar exchange rate to rise by 7.6% (to 6.35 yuan per dollar) through November 30, 2011. U.S. officials have criticized this pace as being too slow, especially given China's strong economic growth over the past few years and its rising level of foreign exchange reserves. Many economists argue that the effects of China's currency policy on the U.S. economy are complex. If the RMB is undervalued (as many contend), then it might be viewed as an indirect export subsidy which artificially lowers the prices of Chinese products imported into the United States. Under this view, this benefits U.S. consumers and U.S. firms that use Chinese-made parts and components, but could negatively affect certain U.S. import-sensitive firms. An undervalued RMB might also have the effect of limiting the level of U.S. exports to China than might occur under a floating exchange rate system. Further complicating the issue is China's large purchases of U.S. Treasury securities, which totaled at least \$1.15 trillion as of September 2011. These purchases occur because China's intervention in currency markets causes it to accumulate large levels of foreign exchange reserves, especially U.S. dollars, which are then used to purchase U.S. debt. Such purchases help the U.S. government fund its budget deficit, which helps to keep U.S. interest rates relatively low. These factors suggest that an appreciation of the RMB to the dollar could benefit some U.S. sectors, but could negatively affect others. The effects of the global economic slowdown have refocused attention on the need to reduce global imbalances especially between China and the United States. Many economists contend that China should take steps to rebalance its economy by lessening its dependence on exports while boosting the level of domestic consumer demand. A market-based currency policy is seen as an important factor in achieving this goal. Further RMB appreciation could help promote the development of non-export industries in China, while boosting China's imports, including from the United States.

**1.1 2005: CHINA REFORMS THE PEG**

The Chinese government brings reforms in its currency policy on July 21, 2005. It announced that the RMB's exchange rate would become "adjustable, based on market supply and demand with and that the exchange rate of the U.S. dollar against the RMB would be adjusted from 8.28 yuan to 8.11, an appreciation of 2.1%. Unlike a true floating exchange rate, the RMB allowed to fluctuate by up to 0.3% (later changed to 0.5%) on a daily basis against the basket. After July 2005, China allowed the RMB to appreciate steadily, but very slowly. From July 21, 2005 to July 21, 2008, the dollar-RMB exchange rate went from 8.11 to 6.83, an appreciation of 18.7%. The situation at this time might be best described as a "managed float", market forces determined the general direction of the RMB's movement, but the government retarded its rate of appreciation through market intervention.

**1.2 2008: RMB APPRECIATION IS SUSPENDED**

China stops its currency appreciation policy around mid-July 2008 because of declining demand and recession resulted from the effects of the global financial crisis. In 2009, Chinese exports and imports fell by 15.9% and 11.3% over 2008 levels. The Chinese government reported that thousands of export-oriented factories were shut down and that over 20 million migrant workers lost their jobs in 2009 because of the direct effects of the global economic slowdown.

**1.3 2010: RMB APPRECIATION IS RESUMED**

On June 19, 2010, China's central bank, the People's Bank of China (PBC), stated that, based on current economic conditions, it had decided to "proceed further with reform of the RMB exchange rate regime and to enhance the RMB exchange rate flexibility." Many observers contend the timing of the RMB announcement was intended in part to prevent China's currency policy from being a central focus of the G-20 summit in Toronto. From June 2010 to November 30, 2011, the yuan/dollar exchange rate rose from 6.83 to 6.35, an appreciation of 7.6%.

**2. REVIEW OF LITERATURE**

The current global economic crisis has further complicated the currency issue for both the United States and China. Although China is under pressure from the United States to appreciate its currency, it is reluctant to do so because it could cause further damage to export sector and lead to more layoffs. Potential future substitute of the U.S. dollar as the dominant reserve currency is the Chinese renminbi (RMB, ¥), also called Yuan (CNY). Since 2007, China is the fourth largest economy in the world measured by gross domestic product (GDP), already outrunning the United Kingdom. Currently they are the third largest global trading partner, with an average growth of 25% over the full length of the decade before 2008. Still the growth of the renminbi's global use is limited due to their peg to the U.S. dollar and other restrictions that are put on by the Chinese authorities. Albert Keidel, argued that in present condition of global trading linkages, a country's world surplus – rather than its share of the U.S. trade deficit – is the true measurement of its contribution to global imbalance. Morris Goldstein stated that revaluation of 15 per cent to 30 per cent for the RMB against the U.S. dollar based on the data of China's balance of payments and from the viewpoint of global payment imbalances.

Michael Funke and Jorg Rahn estimated a peak undervaluation of the RMB of around 15 per cent against the U.S. dollar in 2001, but they also argued that there was no evidence of the RMB being substantially undervalued between January 1985 and April 2002. The World Trade Organization (WTO) statistics show that China's share of world exports rose from 2.8 per cent to 5.8 per cent between 1993 and 2003, while shares of Japan and the Asian NIEs fell from 9.6 per cent to 6.3 per cent and 10 per cent to 9.5 per cent respectively.

According to Yu Yongding, since China's export industry is, for the most part, characterized by processing trade, and that manufacturers in the industry have strong adaptability, China's international trade situation would not be fundamentally affected if the value of the RMB rises by a small margin. Yu also stated that the RMB appreciation would force some inefficient exporters to exit from the industry and ease the vicious competition in international markets. As a result, as the terms of trade improve, China's trade surplus would increase. In addition, Chinese companies would be motivated to develop their competitiveness by advancing operational efficiency and not relying only on cheap labor costs. Wen Jiabao argued that gradually establish a market-based and well-managed floating exchange rate system and to keep the RMB exchange rate basically stable at a reasonable and balanced level is the unalterable direction and the goal of China's exchange rate reform that started from 2005.

According to Li Deshui, China would not allow the free float of the RMB in five years due to its fragile financial markets. Tao Dong argued that large and rapid appreciation of the RMB would hurt not only the Chinese exporters but also foreign consumers. Liu Wei at Peking University stated that every 1 per cent growth in GDP could provide 1.7 million employment opportunities in China. To ease the possible unemployment problem he argued that the Chinese government had to maintain continuous economic growth at a high rate.

Zhang Bin Chinese economist suggested that reversing the trend of swift growth in international reserves should be the priority of China's reserve management. Useful methods included boosting domestic demand, modernizing the financial system, reducing the need for saving and allowing the RMB to appreciate. In the long run, optimizing economic structure would be key to addressing the issue. In response to international debates, Chinese Premier Wen Jiabao said that China would further advance the reform and forge a more flexible mechanism which would adapt to changes in market supply and demand. He argued that this reform would represent a systematic project involving many aspects.

**3. EFFECTS OF CHINA'S CURRENCY POLICY ON U.S ECONOMY****3.1 TRADE DEFICITS**

Several U.S. policymakers and certain business men and labor representatives argued that the Chinese government "manipulates" its currency in order to make it significantly undervalued against the U.S. dollar, thus making Chinese exports to the United States less expensive, and U.S exports to China more expensive, rather than exchange rates were determined by market forces. They also stated that a pegged currency may have been appropriate during China's early stages of economic development but today it cannot longer be justified, given the size of China's economy and trade flows, and the impact these have on the global economy. Policy maker also argue that the undervalued currency has been a major factor behind the burgeoning U.S. trade deficit with China, which surged from \$10 billion in 1990 to \$273 billion in 2010, and is estimated to reach about \$295 billion in 2011. Bloomberg Government estimated that a 7% annual real appreciation of the RMB to the dollar would cut the U.S. trade deficit with China in half by 2014

**3.2 EFFECT ON U.S. CONSUMERS AND CERTAIN PRODUCERS**

Society's economic well-being is usually measured not by how much it can produce, but how much it can consume. An undervalued RMB that lowers the price of imports from China allows the United States to increase its consumption through an improvement in the terms-of-trade. An undervalued RMB is to increase the purchasing power of U.S. consumers. Imports from China are not limited to consumption goods. U.S. firms also import capital equipment and inputs from China to produce finished goods. An undervalued RMB lowers the price of these U.S. products, increasing their output, and thus making such firms more internationally competitive. An appreciation of China's currency could raise prices for U.S. consumers, lowering their economic welfare, meaning they have less money to spend on other goods and services. In addition, firms that use imported Chinese parts could face higher costs, making them relatively less competitive.

**3.3 EFFECT ON U.S. BORROWERS**

An undervalued RMB also has an effect on U.S. borrowers. When the United States runs a current account deficit with China, an equivalent amount of capital flows from China to the United States, as can be seen in the U.S. balance of payments accounts. This occurs because the Chinese central bank or private Chinese citizens are investing in U.S. assets, which allows more U.S. capital investment in plant and equipment to take place than would otherwise occur. Capital investment increases because the greater demand for U.S. assets puts downward pressure on U.S. interest rates, and firms are now willing to make investments that were previously unprofitable. This increases aggregate spending in the short run and also increases the size of the economy in the long run by increasing the capital stock.

**3.4 UNEMPLOYMENT**

The current high rate of unemployment in the United States appears to have serious concerns over the perceived impact of China's currency policy on the U.S. economy, especially employment. Many have reported that RMB appreciation would boost the level of U.S. jobs. Some analysts contend that there is a direct correlation between the U.S. trade deficit and U.S. job losses. For example, a study by the Economic Policy Institute (EPI) claims that the U.S. trade deficit with China led to the loss or displacement of 2.8 million jobs (of which, 69% were in manufacturing) between 2001 and 2010. The EPI report states that, while U.S. imports from China "displace American workers who would have been employed making these products in the United States." U.S. exports to China support U.S. jobs.

**3.5 EFFECT ON U.S EXPORTERS AND IMPORT-COMPETITORS**

The current exchange rate policy causes the RMB to be less expensive than it would be if it were determined by supply and demand, in result Chinese exports to be relatively inexpensive and U.S. exports to China to be relatively expensive. So U.S. exports and the production of U.S. goods and services that compete with Chinese imports in the short run reduce. Many of the firms are affected in the manufacturing sector. As a result the trade deficit to rise and reduces aggregate demand in the short run, all else equal. A market-based exchange rate can help U.S. exports to boost and provide some relief to U.S. firms that directly compete with Chinese firms.

**3.6 INDUCES OTHER EAST ASIAN COUNTRIES**

Some analysts reported that China's currency policy encouraging other East Asian economies to intervene in currency markets and keep their currencies weak against the dollar so they can compete with Chinese goods; this action is preventing further depreciation of the dollar relative to other Asian currencies, and thus diminishing U.S. exports throughout Asia. Based on the assumption, that China's currency is undervalued by at least 40% against the dollar. Fred Bergsten stated that Chinese currency would result in a large appreciation of the RMB and other Asian currencies against the dollar which would boost U.S. exports and generate an additional 600,000 to 1.2 million jobs in the United States.<sup>20</sup>

**3.7 "BEGGAR THY NEIGHBOR" POLICY**

Mean's to promote Chinese economic development at the expense of other countries at a time of global economic crisis. Some experts stated that a significant appreciation of the RMB would reduce the bilateral trade imbalance between China and the U.S.. For example, the study assumes that RMB appreciation would result in the appreciation of other currencies as well, which would result in a sharp drop in the overall U.S. trade deficit from an estimated \$368 billion in 2011 to \$59 billion in 2014. Because of these factors, some critics argue that China should be cited by the Department of the Treasury as a country that manipulates its currency in order to gain an unfair trade advantage.

**3.8 BARRIER IN GLOBAL ECONOMIC RECOVERY**

Paul Krugman stated that the undervalued RMB has become a significant drag on global economic recovery, estimating that it has lowered global GDP by 1.4%, and has especially hurt poor countries. Claims about the negative effect of China's exchange rate on U.S. employment and trade are often juxtaposed with the observation that China's economy has grown rapidly over the past three years (real GDP grew at an average annual rate of nearly 10% from 2008 to 2010), while other countries experienced negative or stagnant growth.

**4. CHINESE CONTROVERSIAL SUBSIDIES THAT DO HARM THE U.S AND GLOBAL ECONOMY****4.1 NO COMPETITION FOR STATE-OWNED ENTERPRISES**

Beijing has different ways to intervene in the market, starting with simply telling companies and banks what to do. The ability to order firms to act, using laws made by the will of Communist Party, is the heart of the biggest of Chinese subsidies: protection against competition through tight regulatory control of market entry and exit. Central government controls nearly all major industries. Like oil and gas, petrochemicals, electric power, and telecommunications, aviation, coal, and shipping the state must control the sector as a whole. Sectors like autos, construction, machinery, metals, and information technology, the state's role is to expand until it controls the sector. It also controls insurance, the media, railways, and China's powerful tobacco industry, nearly all banks are state-owned, providing a huge lever to control the rest of the economy.

**4.2 STATE-DOMINATED INDUSTRIES IN CHINA**

The collective market share of importers, foreign firms based in the PRC, and Chinese private companies is not allowed to expand beyond a certain, often minimal position. There are other examples of regulatory favoritism but there is no greater subsidy than assured market share, in this case of a large market. Further, while SOEs are said to compete with each other, the competition can be difficult to recognize. Provincial SOEs can never lose a competition because they are never allowed to go bankrupt.

**4.3 TRADITIONAL SUBSIDIES**

The financial subsidies to boost SOEs like access to domestic securities markets is heavily biased in their favor. Because of government-controlled interest rates, ordinary depositors now receive less on their savings than they pay in inflation negative real returns. Banks gain from this low payout but themselves can only charge for borrowing at roughly equal to the rate of inflation. Banks also must place reserves at the central bank, the People's Bank of China, at very low yields, costing revenue. That's why the People's Bank faces a rapidly deteriorating balance sheet due to irresponsible monetary policy.

**4.4 SUBSIDIES LAND**

Land is in principle state-owned, so that acquiring land for expansion is very easy and comparatively cheap for most SOEs than foreign firms. The size of this subsidy is growing rapidly because land value in the PRC has soared in the past few years. Acquiring land is too much difficult and increasingly expensive for non-state companies. These also face the additional problem of insecure ownership rights provincial governments can gain control of their operating sites, sometimes in order to eliminate or reduce competition for their SOEs.

**5. UNITED STATE'S RESPONSE TO CHINA POLICY****5.1 PRESIDENT OBAMA POSITION AND POLICIES**

President Obama stated in February 2010 that China's undervalued currency puts U.S. firms at a "Huge competitive disadvantage," and he pledged to make addressing China's currency policy a top priority. President Obama stated in November 2011 that China needed to "go ahead and move towards a market-based system for their currency" and that the United States and other countries felt that "enough is enough."

Congress shows deep involvement on the China currency issue as long as legislative proposals do not violate U.S. WTO obligations and do not complicate ongoing bilateral and multilateral negotiations with China on the issue. House passed different version of bills and made legislation on these serious issues. Administration official stated that "we share the goal of the legislation in taking action to ensure that our workers and companies have a more level playing field with China, including addressing the under-valuation of their currency."

**5.2 OVERCOME THROUGH DIALOGUE**

The Obama Administration has sought to directly engage China on the currency issue through the Strategic & Economic Dialogue (S&ED) and the Joint Commission on Commerce and Trade (JCCT). Secretary of the Treasury Tim Geithner stated: "We hope that China moves to allow the exchange rate to appreciate more rapidly and more broadly against the currencies of all its trading partners."

**5.3 USAGE OF MULTI CHANNELS**

It has sought to use different channels, such as the Group of 20 (G-20) of leading economies and the IMF, as a means to boost international cooperation on external balances and exchange rate policies and to bring more pressure on China to appreciate its currency. Secretary Geithner issued a proposal aimed at the G-20 meeting of finance ministers and central bank governors on October 23, 2010. The proposal contained three main points:

- G-20 countries should commit to taking steps to reduce external imbalances (Both surpluses and deficits) below a specified share of GDP over the next few years.
- G-20 countries should commit to refrain from exchange rate policies designed to achieve competitive advantage by either weakening their currency or preventing appreciation of an undervalued currency. G-20 emerging market countries need to allow their exchange rates to adjust fully with market base system.
- The G-20 should call on the IMF to assume a special role in monitoring progress on these commitments and should publish a semiannual report assessing progress the G-20 countries have made to achieve these goals.

**5.4 LEGISLATIVE PROPOSALS**

Over the last few years, some legislative proposals have sought to apply U.S. anti-dumping and countervailing duty measures to address the effects of China's undervalued currency, namely to

Treat it as an export subsidy (countervailing measures) or as a factor that is included in the determination of anti-dumping duties. Several supporters of currency legislation aimed at China hope that the introduction of such legislation and bills will induce China to appreciate its currency more rapidly. Critics of the bill contend that such legislation could antagonize China and induce it to slow the rate of RMB appreciation. S.1619, H.R.639/S.328, S.1130 is some bills that introduced by U.S officials in Congress.

## 6. CONCLUSION AND POLICY OPTIONS

It is concluded that if the Chinese were to allow their currency to float, it would be determined by private actors in the market based on the supply and demand for Chinese goods and assets relative to U.S. goods and assets. If the RMB appreciated as a result, this would boost U.S. exports and the output of U.S. producers who compete with the Chinese. The U.S. bilateral trade deficit would likely decline (but not necessarily disappear).

When Chinese central bank would no longer purchase U.S. assets to maintain the peg. U.S. borrowers, including the federal government, would now need to find new lenders to finance their borrowing, and interest rates in the United States would rise. This would reduce spending on interest-sensitive purchases, such as capital investment, housing (residential investment), and consumer durables. The reduction in investment spending would reduce the long-run size of the U.S. capital stock, and thereby the U.S. economy. In the present context of a large U.S. budget deficit, some analysts fear that a sudden decline in Chinese demand for U.S. assets (because China was no longer purchasing assets to influence the exchange rate) could lead to a drop in the value of the dollar that could potentially destabilize the U.S. economy and if the relative demand for Chinese goods and assets were to fall at some point in the future, the floating exchange rate would depreciate, and the effects would be reversed.

A move to a floating exchange rate is typically accompanied by the elimination of capital controls that limit a country's private citizens from freely purchasing and selling foreign currency. The Chinese government maintains capital controls because it fears a large private capital outflow would result if such controls were removed. This might occur because Chinese citizens fear that their deposits in the potentially insolvent state banking system are unsafe. If the capital outflow were large enough, a banking crisis in China could result and could cause the floating exchange rate to depreciate rather than appreciate. If this occurred, the output of U.S. exporters and import competing firms would be reduced below the prevailing level, and the U.S. bilateral trade deficit would likely expand. In other words, the United States would still borrow heavily from China, but it would now be private citizens buying U.S. assets instead of the Chinese central bank.

It is also possible for China to maintain the status quo. Even without adjustment to the Nominal exchange rate, over time the real rate would adjust as inflation rates in the two countries diverged. The Chinese central bank acquires foreign reserves by printing yuan to finance its trade surplus. As the central bank exchanged newly printed yuan for U.S. assets, prices in China would rise along with the money supply until the real exchange rate was brought back into line with the market rate. This would cause the U.S. bilateral trade deficit to decline and expand the output of U.S. exporters and import-competing firms.

## 7. REFERENCES

1. Bloomberg Government, A Higher Yuan Would Half the U.S.-China Trade Deficit, December 2011.
2. "China to Promote Auto Imports in Next Five Years: Official," Xinhua news agency, December 26, 2010.
3. Derek Scissors, "Chinese State-Owned Enterprises and U.S.-China Economic Relations," testimony before the U.S.-China Economic and Security Review Commission, March 30, 2011.
4. Fair, Ray C., "Estimated Macroeconomic Effects Of A Chinese Yuan Appreciation," Cowles Foundation Discussion Paper 1755, March 2010.
5. Heritage Foundation, WebMemo, Deadlines and Delays: Chinese Revaluation Will Still Not Bring American Jobs, April 6, 2010.
6. IMF, Challenges to the International Monetary System: Rebalancing Currencies, Institutions, and Rates, Presentation by Mr. Takatoshi Kato, September 30, 2011.
7. IMF, People's Republic of China: 2010 Article IV Consultation—Staff Report; Staff Statement; Public Information Notice on the Executive Board Discussion, July 2010.
8. New York Times, March 14, 2010, and December 31, 2009. Krugman also estimates that China's currency policy has caused 1.4 million job losses in the United States.
9. Steven Dunaway et al., "How Robust are Estimates of Equilibrium Real Exchange Rates: The Case of China," IMF working paper 06/220, October 2006.
10. Subramani, Arvind, New PPP-Based Estimates of Renminbi Undervaluation and Policy Implications, Peterson Institute For International Economics Policy Brief, number PB10-8, April 2010.
11. Tao Wang, "Exchange Rate Dynamics," in Eswar Prasad, ed., "China's Growth and Integration into the World Economy," International Monetary Fund, Occasional Paper 232, 2004.
12. Testimony by C. Fred Bergsten, Peterson Institute of International Economics, Correcting the Chinese Exchange Rate: an Action Plan, before the House Ways & Means Committee, March 24, 2010.
13. The White House, News Conference by President Obama, November 14, 2011
14. The White House, Remarks by the President at the Senate Democratic Policy Committee Issues Conference, February 3, 2010.

**SALES STYLES OF EXECUTIVES SELLING TWO AND FOUR WHEELERS**

**DR. NAVPREET SINGH SIDHU**  
**ASSOCIATE PROFESSOR**  
**PUNJAB COLLEGE OF TECHNICAL EDUCATION**  
**BADDOWAL**


**ABSTRACT**

*Sales executives are the pillars of an organization and on them depends its success. For an organization to be effective, the sales approach to decision making, along with technological efficiency and facilities available for research and development, is very important. The distinctive way in which various functions such as sales goals, decision making, anxiety management, conflict management, and self management are used and managed comprises the sales style. Those styles, which have damaging effect on the overall health of the organisation, can be easily diagnosed and discontinued, with immediate effect. A diagnostic instrument with a scoring key helps the management to diagnose how far excellent and bad styles are practiced in their organisation so that the best style can be made use of and the bad ones avoided. The present study was undertaken with an aim of understanding and comparing the sales styles being used by executives at various levels in the showrooms of two and four wheelers in a district of Punjab in India. All the 26 salesmen and 13 sales managers working in these showrooms were studied for the sales styles being employed by them. The outcome of this process is discussed in this paper.*

**KEYWORDS**

Sales Goals, Decision Making, Anxiety Management, Conflict Management, and Self Management.

**INTRODUCTION**

 Sales executives are the pillars of an organization and on them depends its success. For an organization to be effective, the sales approach to decision making, along with technological efficiency and facilities available for research and development, is very important. The distinctive way in which various functions such as sales goals, decision making, anxiety management, conflict management, and self management are used and managed comprises the sales style. Those styles, which have damaging effect on the overall health of the organisation, can be easily diagnosed and discontinued, with immediate effect. Selling technique is the body of methods used in the profession of sales. According to Paul Eccher five prominent sales styles are

1. The Relationship Selling Style: This style is all about cultivating a close, personal rapport with the prospects and customers. Relationship sellers are known for their friendliness and outgoing personalities.
2. The Technical Problem-Solving Style: Sales professionals who are experts on their products and are able to educate their audience on the details of their offerings are practitioners of the Technical Problem-Solving style. These individuals tend to be quite analytical, and they excel at establishing technical credibility in front of their prospects.
3. The Account Servicing Style: Sales professionals who use this selling style focus on keeping existing customers happy while asking for more business. This service-minded style is built upon a foundation of responsiveness, proactive follow-up, and a strong commitment to doing what is right for physicians and their patients.
4. The Assertive Style: Assertive style sales professionals sell through strength of personality. Strong assertive style reps typically bring that difficult-to-train, "fire in the belly" approach to the work. They are extremely competitive, self-assured, intense, and assertive.
5. The Business Partnering Style: Sales professionals who establish a business consulting relationship with their customers employ this style. Business Partners understand strategic issues and market conditions that influence business practices. They excel in helping their customers "grow" their businesses. Successful business partners display excellent big-picture thinking skills, market knowledge, persuasive communication capabilities, and creativity.

**REVIEW OF LITERATURE**

Customers have matured in terms of how they buy, and consequently are changing their expectations of suppliers. Their demands are often for integrated total solutions to business problems (Blustain, 1992; Henke, 2000; Webster, 1992). In response, salespeople have gained considerable operating freedom at the buyer-seller interface (Del Vecchio, 1998). The salesman of today is more of a relationship manager working both sides of increasingly complex buyer-seller interfaces (e.g., Beverland, 2001; Cespedes, *et al.*, 1989; Dwyer, *et al.*, 1987).

Weitz (1981) offers a view of the sales role which starts to inform our thinking. His framework proposes that effective selling is a series of salesperson behaviors contingent upon: (1) the resources of the salesperson, (2) the characteristics of the buyer-seller relationship, and (3) the nature of the customer's buying task. Weitz's model is important because it captures the notion that adaptation on the part of the salesperson is an integral component of success. It also raises the issue of resources being important to sales success, with the unstated assumption being that many of these resources reside inside the salesperson's own organization.

Saxe and Weitz (1982) pointed out that the customer-oriented selling refers to the degree to which salespeople practice the marketing concept by trying to help their customers make purchase decisions that will satisfy the customers' needs. This involves a more problem identification and problem solving approach. Adaptive selling means that salespeople change their sales strategies according to the sales situation (Weitz, *et al.*, 1986) and leans towards customer-oriented models.

(Johnston, *et al.*, 1989; Jolson, 1999) concluded that factors inside the salesperson's own company are often responsible for poor performance — factors such as poor sales territory design, poor marketing support, and ineffective first-level sales managers. It may be said that salespeople who proactively manage these internal factors may be more successful than those who do not.

According to Churchill, Ford & Walker (1993) most selling techniques confirm to one of the four philosophical orientations: (1) the stimulus-response approach, (2) mental-state approach, (3) need-satisfaction approach, and (4) problem-solution approach. The first two approaches are salesperson-oriented, rather than customer oriented. The third one involves a two-way communication between the seller and the buyer and the fourth approach involves a healthy interaction for problem solving.

Marshall, *et al.* (1999) updated the original study of Moncrief (1986) and found that the activities salespeople perform have changed markedly in recent years. Some of these newer activities are internally focused—such as making the sale and then turning it over to someone else, and coordinating with sales support. This again signals the emerging importance of the salesperson's internally-directed selling behaviors.

**NEED OF THE STUDY**

Enormous research has been done in foreign countries as well as in India on sales styles of executives. But only a few have been conducted on sales styles of executives in companies of Punjab, India. Hence, the present study was taken up.

**OBJECTIVES**

1. To study the sales styles of the executives of showrooms of two and four wheelers in Moga city of Punjab.
2. To compare the sales styles of the executives of showrooms of two and four wheelers in Moga city of Punjab.

**RESEARCH METHODOLOGY**

For the present study both exploratory and conclusive research methods were used. The conclusive research method here is descriptive in nature and the research design is single cross-sectional. In this study primary data has been collected through survey method. The research was conducted with the help of a structured interview schedule based on a modified Sales Troika Styles (Pareek, 1997). According to this instrument the troika consists of the concern for product, customer and company. The original instrument has already been tested for reliability and validity and proposes the following styles:

- 1) 1,1,1 – Routine-sale oriented
- 2) 1,9,1 – Customer oriented
- 3) 9,1,1 – Product oriented
- 4) 9,9,1 – Solution oriented
- 5) 1,1,9 – Company oriented
- 6) 1,9,9 – Loyalty-relationship oriented
- 7) 9,1,9 – Company-product oriented
- 8) 9,9,9 – Creative-solution oriented
- 9) 5,5,5 – Technique oriented

In the present case the target population consists of salesmen and sales managers working in the showrooms of two and four wheelers in Moga city of Punjab state in India. The unit (Kotler, 1997) in the study includes the showrooms of two and four wheelers while the elements are the sales managers and salesmen working in them. All the nine sales managers and twenty six salesmen working in these showrooms have been covered in the study.

The respondents were personally administered the questionnaire and primary data was collected. The questionnaire consisted of two parts, namely, Part-A and Part-B. Part-A of the questionnaire consisted of solicited information about the profile of respondents like their age, designation etc. Part-B consisted of 18 questions based on Sales Troika Styles (relating to sales goals and decision making) proposed by Mr. Udai Pareek. This questionnaire consisted of 9 statements related to sales goals and 9 to decision making and the respondent had to answer on a five point Likert scale (Malhotra and Dash, 2010) in all the eighteen statements.

Analysis of data has been done by constructing suitable tables and by using other statistical techniques like mean, standard deviation, and z-test for proportions. Percentage method was used to analyze Part-A of the questionnaire. The percentage of respondents was calculated for each category of respondent's profile. Part-B consisted of 18 questions. The answer sheet for this questionnaire was used for scoring. Each question had five options and the respondent had to tick on one of them.

**TABLE 1: SCORES FOR DIFFERENT ANSWER CHOICES**

	Score
Strongly Disagree	0.5
Disagree	1.0
Neither Agree nor Disagree	1.5
Agree	2.0
Strongly Agree	2.5

**HYPOTHESIS OF THE STUDY**

The data was analyzed using the following null hypothesis (Bajpai, 2010).

**HYPOTHESIS**

**H<sub>0</sub>:** There is no significant difference between the proportion of agreement for a sales style for salesmen and those for sales managers.

**H<sub>1</sub>:** There is a significant difference between the proportion of agreement for a sales style for salesmen and those for sales managers.

Formula used:

$$Z = \frac{(\bar{p}_1 - \bar{p}_2) - (p_1 - p_2)}{\sqrt{(p_w \times q_w) \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

where:

$\bar{p}_1$  = Proportion of sample 1

$\bar{p}_2$  = Proportion of sample 2

$p_w = \frac{x_1 + x_2}{n_1 + n_2}$  = Estimate of population proportion

$q_w = 1 - p_w$

$n_1$  = Size of sample 1

$n_2$  = Size of sample 2

$p_1$  = Proportion of population 1

$p_2$  = Proportion of population 2

**LIMITATIONS OF THE STUDY**

To understand the research findings in their right perspective, it is necessary that limitations of the study be mentioned. The present study may have suffered from the following limitations.

1. Size of the sample selected for research may perhaps be considered as small, hence; the result of this study might not be fully reliable for generalization for the whole country.

2. Since the questionnaire is comparatively lengthy and the executives normally busy, there are chances that information obtained in some cases might have deviated from actual.
3. The respondents were asked to give their practical views and not the ideology, but the personal biases of the respondents might have affected the results.

## RESULTS AND DISCUSSION

The outcome of number of respondents has been categorized in categories such as age, educational qualifications, total work experience, and levels of management.

### AGE

Age is the first and a very important factor to analyze the sales style of executives in different companies. In this study the age of respondents has been divided into four categories.

Table 2 indicates that the largest group for respondents belonged to below 30 (46.15 percent) while the smallest group is for 50 and above (05.3 percent) year categories.

Majority of salesmen, 69.23%, belonged to the age group of below 30 years while the rest are between 30 and 40 years of age.

In the sales manager category, more than two third belonged to the age group of 40-50 years.

**TABLE 2: FREQUENCY DISTRIBUTION OF EXECUTIVES IN TERMS OF AGE**

Age (Years)	No. of Respondents		Total
	Salesmen	Sales Managers	
Below 30	18 (69.23)	-	18 (46.15)
30-40	08 (30.77)	02 (15.38)	10 (25.64)
40-50	-	09 (69.24)	09 (23.08)
50 & above	-	02 (15.38)	02 (05.13)
Total	26 (100)	13 (100)	39 (100)

Note: The figures in brackets indicate the percentages.

### EDUCATIONAL BACKGROUND

Educational background is a very important factor, which affects the behaviour of an individual to a very large extent. Table 3 indicates a majority of respondents (61.53%) were found to be having an educational level of graduation and the rest were post-graduates.

Furthermore, among the salesmen around four fifth of the respondents were graduates and 19.23 percent were post-graduates. Among sales managers three-fourth of the respondents was post graduates and 23.08 percent were graduates.

**TABLE 3: FREQUENCY DISTRIBUTION OF EXECUTIVES IN TERMS OF EDUCATIONAL QUALIFICATION**

Educational Qualification	No. of Respondents		Total
	Salesmen	Sales Managers	
Graduate	21 (80.77)	03 (23.08)	24 (61.53)
Postgraduate	05 (19.23)	10 (76.92)	15 (38.47)
Total	26 (100)	13 (100)	39 (100)

Note: The figures in brackets indicate the percentages.

### TOTAL WORK EXPERIENCE

The next important factor under study was the total work experience of the executives. On the basis of the total work experience the executives were classified into four categories, i.e.

- i) Less than 5 years,
- ii) Between 5 and 10 years,
- iii) Between 10 and 15 years,
- iv) Above 15 years.

Table 4 shows that a majority of the sales executives have an experience of less than 10 years.

In case of salesmen nearly 60 percent have an experience of less than 5 years and the rest being divided in the categories of between 5 and 10, and between 10 and 15 years.

At the sales manager level, over fifty percent of the respondents have an experience which is above 15 years; the rest being equally divided in the categories from 5 to 15 years.

**TABLE 4: FREQUENCY DISTRIBUTION OF EXECUTIVES IN TERMS OF TOTAL WORK EXPERIENCE**

Total Work Experience (Years)	No. of Respondents		Total
	Salesmen	Sales Managers	
Less than 5	15 (57.69)	-	15 (38.46)
5-10	07 (26.92)	03 (23.08)	10 (25.64)
10-15	04 (15.39)	03 (23.08)	07 (17.95)
Above 15	-	07 (53.84)	07 (17.95)
Total	26 (100)	13 (100)	39 (100)

Note: The figures in brackets indicate the percentages.

### LEVEL OF MANAGEMENT

Table 5 shows that the number of salesmen is exactly the double of the number of sales managers.

**TABLE 5: FREQUENCY DISTRIBUTION OF EXECUTIVES IN TERMS OF LEVEL OF MANAGEMENT**

Level of Management	No. of Respondents	Percentage
Salesmen	26	66.67
Sales Managers	13	33.33
Total	39	100

## ANALYSIS OF SALES STYLES OF EXECUTIVES

### 1. RANKING OF THE SALES STYLES BEING EMPLOYED BY EXECUTIVES

Table 6 shows that 9,1,1 – Product oriented and 1,9,1 – Customer oriented are the top two styles for both the categories while the third rank for salesmen and sales managers are being taken by 1,1,1 – Routine-sale oriented and 9,9,1 – Solution oriented respectively.

TABLE 6 – RANKING OF THE SALES STYLES BEING EMPLOYED BY SALES EXECUTIVES BASED ON THE MEAN SCORES

Rank	Style	
	Salesmen	Sales Manager
1.	9,1,1 – Product oriented	9,1,1 – Product oriented
2.	1,9,1 – Customer oriented	1,9,1 – Customer oriented
3.	1,1,1 – Routine-sale oriented	9,9,1 – Solution oriented
4.	9,9,1 – Solution oriented	1,1,1 – Routine-sale oriented
5.	1,9,9 – Loyalty-relationship oriented	9,9,9 – Creative-solution oriented
6.	5,5,5 – Technique oriented	1,9,9 – Loyalty-relationship oriented
7.	9,9,9 – Creative-solution oriented	1,1,9 – Company oriented
8.	9,1,9 – Company-product oriented	5,5,5 – Technique oriented
9.	1,1,9 – Company oriented	9,1,9 – Company-product oriented

## 2. TWO-SAMPLE ANALYSIS RESULTS

### HYPOTHESIS

**H<sub>0</sub>:** There is no significant difference between the proportion of agreement for a sales style for salesmen and those for sales managers.

**H<sub>1</sub>:** There is a significant difference between the proportion of agreement for a sales style for salesmen and those for sales managers.

(Variable 1: Salesmen, Variable 2: Sales Manager)

1) 9,1,1 – Product oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.884615385	1
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.923076923	
Z	-1.274754878	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject H<sub>0</sub>

2) 1,9,1 – Customer oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.846153846	0.923076923
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.871794872	
Z	-0.677365137	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject H<sub>0</sub>

3) 9,9,1 – Solution oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.615384615	0.846153846
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.692307692	
Z	-1.471960144	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject H<sub>0</sub>

4) 1,1,1 – Routine-sale oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.769230769	0.692307692
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.743589744	
Z	0.518618855	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject H<sub>0</sub>

5) 9,9,9 – Creative-solution oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.115384615	0.461538462
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.230769231	
Z	-2.418677324	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is more than the critical value, so, reject  $H_0$

6) 1,9,9 – Loyalty-relationship oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.192307692	0.461538462
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.282051282	
Z	-1.761326979	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject  $H_0$

7) 1,1,9 – Company oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.076923077	0.230769231
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.128205128	
Z	-1.354730275	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject  $H_0$

8) 5,5,5 – Technique oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.076923077	0.153846154
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.102564103	
Z	-0.746420027	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject  $H_0$

9) 9,1,9 – Company-product oriented

z-Test: Two Sample for Proportions		
Agreements for the style		
	Variable 1	Variable 2
Proportion	0.115384615	0.076923077
Observations	26	13
Hypothesized Proportion Difference	0	
Estimated Population Proportion	0.102564103	
Z	0.373210014	
z Critical two-tail	1.959962787	

**Result:** Since the calculated value is less than the critical value, so, do not reject  $H_0$

## CONCLUSIONS

As is evident from the discussion, 9,1,1 – Product oriented, 1,9,1 – Customer oriented, 1,1,1 – Routine-sale oriented, and 9,9,1 – Solution oriented styles are being used primarily by the sales executives both at salesman as well as sales manager level whereas the most complete style i.e. 9,9,9 – Creative-solution oriented lies at the fifth rank for sales managers and at seventh rank for salesmen which is not a healthy trend.

The results of the z-test show that there is no significant difference between the proportions for the nine sales styles for executives working at salesmen and sales manager levels except for 9,9,9 – Creative-solution oriented style which is used quite less at salesman level.

The proportions are quite low for styles where there has to be a strong concern for the company i.e. (a) 9,9,9, (b) 1,9,9, (c) 1,1,9, and (d) 9,1,9.

## RECOMMENDATIONS

- The principal styles used by sales executives are 9,1,1 – Product oriented, 1,9,1 – Customer oriented which are NOT-OK styles so; it is required that suitable training is provided to the managers so that more of OK style of 9,9,9 – Creative-solution oriented is used. It has to be explained that all the three dimensions of product, customer and company need to be kept in mind while making a sale.
- The scores for 9,9,9 – Creative-solution oriented style is quite low. An attempt for changing the behavioral patterns for such styles should be made.
- The proportions for styles involving concern for company being low indicate that the executives at all the levels are laying less concern for the company. Suitable trainings stressing on this point need to be conducted.

## SCOPE FOR FURTHER RESEARCH

The present study was conducted on only the showrooms of Moga (Punjab-India). But, as the number of showrooms in the area is very limited, so, the study can be for more districts of Punjab or even in more states of India.

## REFERENCES

- Bajpai, N. (2010), "Business Statistics." Pearson, 358-362.
- Beverland, M. (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.
- Blustain, H. (1992), "Selling and sales management in action — From hot boxes to open systems: The changing world of computer salespeople." Journal of Personal Selling and Sales Management, 12(2), 67-72.

4. Cespedes, F. V., Doyle, S. X., & Freedman, R. J. (1989), "Teamwork for today's selling." *Harvard Business Review*, 67(2), 44-58.
5. Churchill, G. A., Ford, N. M., & Walker, O. C. (1993), "Sales Force Management." Irwin (Homewood, IL), 124.
6. DelVecchio, S. K. (1998), "The salesperson's operating freedom: A matter of perception." *Industrial Marketing Management*, 27(1), 31-40.
7. Dwyer, F. R., Schurr, P. H., & Oh, S. (1987), "Developing buyer-seller relationships." *Journal of Marketing*, 51(2), 11-27.
8. Henke Jr., J. W. (2000), "Strategic selling in the age of modules and systems." *Industrial Marketing Management*, 29(3), 271-284.
9. Johnston, M. W., Hair Jr., J. F., & Boles, J. (1989), "Why do salespeople fail?" *Journal of Personal Selling and Sales Management*, 9(3), 53-58.
10. Jolson, M. A. (1999), "When salespeople fail: Assessing blame." *Industrial Marketing Management*, 28(1), 19-26.
11. Kotler, P. (1997), "Marketing Management Analysis, Planning, Implementation, and Control." Prentice Hall of India, 117-123.
12. Malhotra, N.K., & Dash, S. (2009), "Marketing Research: An Applied Orientation, Prentice Hall of India." 76-91, 274-275.
13. Marshal, G. W., Moncrief, W. C., & Lassk, F. G. (1999), "The current state of sales force activities." *Industrial Marketing Management*, 28(1), 87-98.
14. Moncrief, W. C. (1986), "Selling activity and sales position taxonomies for industrial salesforces." *Journal of Marketing Research*, 23(3), 261-270.
15. Pareek, U. (1997), "Training Instruments For Human Resource Development." Tata Mcgraw-Hill Publishing Company Limited, 316-322, 446-449.
16. Saxe, R., & Weitz, B. A. (1982), "SOCO scale: A measure of the customer orientation of salespeople." *Journal of Marketing Research*, 19(3), 343-351.
17. Selling Styles. [Online] Available <http://www.salesmanhelp.com/products/download.php?file=Selling%20styles.pdf> December 25, 2012.
18. Webster Jr., F. E. (1992), "The changing role of marketing in the corporation." *Journal of Marketing*, 56 (4), 1-17.
19. Weitz, B. A. (1981), "Effectiveness in sales interactions: A contingency framework." *Journal of Marketing*, 45(1), 85-103.
20. Weitz, B. A., Sujan, H., & Sujan, M. (1986), "Knowledge, motivation and adaptive behaviour: A framework for improving selling effectiveness." *Journal of Marketing*, 50(4), 177-191.

## FINANCIAL AND TAXATION ISSUES OF MICRO FINANCE BILL 2012: A MOVE TOWARDS RESPONSIBLE MICROFINANCE IN INDIA

**DR DHARUV PAL SINGH**  
**ASSOCIATE PROFESSOR**  
**DEPARTMENT OF COMMERCE**  
**GOVERNMENT POST GRADUATE COLLEGE**  
**HAMIRPUR**

### ABSTRACT

*Indian microfinance sector is witnessing a movement towards greater regulatory clarity following the crises in Andhra Pradesh. The microfinance institutions (Development and Regulation) Bill 2012 introduced in the parliament on 22<sup>nd</sup> of May comes with modifications to the earlier Bill introduced in 2007. The introduction of this bill brings a much needed strengthening of regulatory framework and consumer protection norms of the microfinance industry in India. This paper examined the financial and taxation issues in this Bill and found the potential to herald the next stage of microfinance growth in India. The designation of RBI as the sole regulator would be a positive step forward for the sector. Though the specifics of regulation for financial and taxation are yet to be determined. If the bill passes, a great challenge will remain; RBI must effectively regulate and monitor a great number of microfinance institutions that have previously been subject to very little regulation.*

### KEYWORDS

Bill, Financial, Microfinance, Taxation.

### INTRODUCTION

Micro finance is most fundamentally the provision of credit without collateral, usually in relatively small amounts and for short periods of time. The excitement around microfinance has generally been based on the perception that it allows formal financial institutions to enter into forms of lending that are otherwise dominated by informal arrangements, such as traditional money lenders. Micro finance is the extension of financial services, notably small loans, to low income groups. It can serve as a vehicle for financial inclusion. Regular banks tend not to lend to the poor because of the high cost per individual loan and lack of collateral. In India, micro finance overcomes these issues by lending to Self Help Groups (SHGs), i.e., groups of pooled borrowings, and Joint Liability Groups (JLGs), i.e., groups of pooled liability. Delivery largely takes place through two mechanisms: the National Bank for Agriculture and Rural Development (NABARD) sponsored SHG Bank Linkage programme, where banks lend directly to SHGs and through micro finance institutions (MFIs) lending to SHGs, JLGs, rural banks and individual clients. Taken together, the Banks-SHG programme and MFIs reached 76.7 million people in 2010-11, a 71% growth over 2006-07<sup>1</sup>

In order to regulate the sector, the government introduced the Micro Financial Sector (Development and Regulation) Bill, 2007, which designated NABARD as the regulator. This Bill lapsed with the dissolution of the 14th Lok Sabha. In 2010, following allegations of aggressive debt-recovery methods by MFIs, the Andhra Pradesh government passed an Act regulating MFI activity in the state. Following this, the RBI appointed the Malegam Committee to study issues and concerns in the sector<sup>2</sup>. Based on the recommendations of the committee, RBI created a separate category of NBFCs (NBFC – MFIs) in December, 2011. All NBFCs providing micro finance services come under RBI's regulations. The Committee also recommended introducing legislation to regulate the sector (Malegam Committee's recommendations). In May 2012, the Micro Finance Institutions (Development and Regulation) Bill was introduced in the Lok Sabha.

### OBJECTIVE OF STUDY

In this paper, we will analyze the financial and taxation issues of the Micro Financial Institutions (Development and Regulation) Bill 2012. This bill to provide for development and regulation of the micro finance institutions for the purpose of facilitating access to credit, thrift and other micro finance services to the rural and urban poor and certain disadvantaged sections of the people and promoting financial inclusion through such institutions and for matters connected therewith or incidental thereto.

### ORGANISATIONAL STRUCTURE

MFIs exist in various forms such as societies, trusts, co-operatives and non-banking financial companies (NBFCs). Most of the MFI's operating in India functions as charitable institutions. Therefore such organizations are registered under the various trust laws in force in various states, Societies registration Act 1860, Co-operative Societies Acts, and Indian Trust Act 1882. Some of them are registered under section 25 of the Companies Act 1956 and quite few of them register their trust deeds under the Indian Registration Act 1908. The above organizations describe themselves as charitable organizations because they are involved in the yeomen service of poverty alleviation through the medium of micro finance. These are known as not-for-profit organizations. Yet another MFI's are functioning purely as commercial organizations and they have no claim that they are involved in charities. Most of them are registered as Non-Banking Financial Companies (NBFC) which are strictly regulated by the Reserve Bank of India (RBI). There are Local Area Banks (LAB) also. These are known as For-profit micro finance organizations. In terms of market share, NBFCs dominate the industry, accounting for an estimated 90% of loan volume in 2010-11.<sup>2</sup> NBFC-MFIs are regulated by the Reserve Bank of India (RBI) Act, 1934. There is no statute regulating the rest of the microfinance industry consisting of societies, trusts and co-operatives.

### REGISTERING MICRO FINANCE INSTITUTIONS

1. The Bill requires any institution providing micro finance services to register with the RBI. The RBI should be certain that the institution will engage in providing micro finance services and have a net-owned fund (aggregate of paid up capital and reserves) of at least Rs 5 lakh.
2. All organizations providing micro finance services will have to register within three months of the Act's commencement. Existing organizations registered with the RBI as an NBFC may continue to engage in micro finance activities subject to the rules and regulations issued by the RBI.
3. Certificates of registration may be cancelled by the RBI if MFIs cease to provide micro finance services or fail to comply with any condition imposed by the RBI. MFIs can appeal to the central government against any rejection or cancellation of certificate.

### FINANCIAL ISSUES

1. Registered MFIs will have to create a reserve fund containing an RBI-specified percentage of net profit or surplus. The fund can only be used for purposes specified by the RBI. NBFCs registered with the RBI are not obliged to create this reserve fund.
2. The RBI can set a maximum limit on the interest rate an MFI can charge for micro credit facilities and the margin an MFI can make. In addition, the RBI can set a ceiling on the amount of loans given to clients and the number of individual clients an MFI has. The RBI can specify the tenure of micro credit facilities

- and other terms and conditions like periodicity of repayment schedules. MFIs will have to provide a breakdown of interest rates, processing fees or other charges on the loan document.
3. For deposit acceptance, the RBI can provide directions relating to prudential norms like capital adequacy based on risk weights, accounting standards and deployment of funds.
  4. Any MFI restructuring, amalgamation or closure will have to be approved by the RBI.

### **MICRO FINANCE DEVELOPMENT FUND**

The RBI will create a Micro Finance Development Fund comprising of government grants, sums raised by donors and the public and any interest made out of investments. The Fund shall be used to provide loans, refinance, grant seed capital or any other micro credit facilities to any MFI. The fund can also be used to invest in existing MFIs.

The interest rates charged by MFIs for loans are usually much higher than the rates charged by banks. This is because the cost structures of MFIs are higher than that of banks on two counts. Firstly, funding for MFIs is costlier; for example in 2009-10 the average cost of funds for MFIs was 9.3% (of the loan portfolio)<sup>3</sup> while for banks the equivalent figure was 5.1%.<sup>4</sup> Secondly, MFI loans are smaller; individual loans typically range between Rs 10,000 and Rs 15,000.<sup>2</sup> Consequently, the transaction cost as a percentage of the loan is higher for MFIs. In 2009-10, operating costs, which include administrative and personnel costs, was 12.3% of the amount lent for MFIs, while the equivalent figure for banks was 1.8%.<sup>3,4</sup>

In order to prevent MFIs from charging excessive interest rates, the Bill enables RBI to set a limit on the interest rate and the margin (the difference between interest rates and cost of funds). In addition, RBI can specify the number of loans, size of loans and number of clients. Currently, the RBI has capped the margin at 10% for large NBFC MFIs (and 12% for the rest).<sup>5</sup>

The provision allowing RBI to set a cap on interest rates is designed to address an issue that arises from limited competition. In micro finance, the price of the product is the lending rate charged by an MFI. Price ceilings are introduced to prevent a monopoly or dominant power in the market from setting too high a price; an issue that comes under the purview of the Competition Commission of India (CCI). However, the Bill does not include any provision for RBI to consult the CCI when setting interest rates.

### **DEPOSITOR PROTECTION**

The Bill permits MFIs to accept deposits. This would create an additional source of funding for MFIs, and also enable clients to have an option to save. However, depositor clients will bear the risk of default by an MFI, unlike borrower clients. Currently, banks and certain types of NBFCs can accept deposits and both are regulated by the RBI.

### **DEPOSIT INSURANCE**

The possibility of a financial institution defaulting and unable to repay deposits poses a significant risk to clients. Deposits in banks are protected, up to Rs 1 lakh, through the Deposit Insurance and Credit Guarantee Corporation. The Bill does not explicitly set out a similar provision for MFIs. Although the Bill requires MFIs to create a reserve fund which could potentially serve as protection for depositors, contributions to this fund are a percentage of profits or surplus. Consequently, any loss-making MFI would not have a fund, leaving depositors without a safety net.

### **CAPITAL REQUIREMENT**

While the Bill gives RBI the authority to set prudential norms, it specifically lays out the requirement for a minimum net-owned fund of Rs 5 lakh for MFIs. It is not clear whether RBI will specify a higher net-owned fund requirement for deposit taking MFIs. In comparison, banks require a net owned fund of Rs 300 crore while public-deposit accepting NBFCs require Rs 2 crore.

### **BORROWER PROTECTION**

One of the major issues arising from the micro finance crisis in Andhra Pradesh was the method of debt-recovery; it was felt to be too aggressive and forceful. According to the Malegam Committee, methods of debt recovery are the responsibility of MFIs and every MFI should establish a proper grievance redressal procedure.<sup>2</sup> The Bill provides for RBI to specify guidelines for fair and reasonable methods of recovery, but does not specify what this would entail. RBI has the power to issue directions to MFIs about observing codes of conduct and setting up MFI-specific grievance redressal mechanisms. In addition, it will also issue a code of conduct for field staff, laying out minimum qualifications and training tools. Currently the RBI has provided an NBFC Fair Practices Code<sup>6</sup> which issues directions on fair practices to NBFCs and in particular, NBFC-MFIs. With regard to debt-recovery, the RBI has specified that recovery should be made at a designated central place and recovery at place of residence should only happen when the borrower fails to appear at the central location.

### **INCLUSION OF INSURANCE AND PENSION UNDER MICRO FINANCE**

Pensions and insurance services are included under the definition of micro finance services. Typically, MFIs provide these services acting as agents. Currently, the insurance sector is regulated by the Insurance Regulatory and Development Authority while the pension sector is regulated by Pension Fund Regulatory Development Authority. There is no mention of either regulator in the Bill. The 2007 Bill did include insurance and pension services under the definition of micro finance services. However, unlike the current Bill, the 2007 Bill explicitly stated that insurance and pension services would be regulated by the respective regulatory authorities.

### **ACCOUNTING ISSUES**

The Bill empowers the RBI to issue directions to MFIs on prudential norms such as income recognition, accounting standards and capital adequacy. The designation of RBI as the sole regulator acknowledged as in charge of all aspects would lead to a great reduction of regulatory uniformity in accounting and taxation issues. These include:

#### **STATUTE DRIVEN ACCOUNTING PRACTICES**

As already indicated there are different organizational structures adopted by the MFI's. So the laws and legal formalities applicable to them would also differ. For e.g. MFI's registered under Section 25 of the Companies act are governed by that law whereas cooperative societies are governed by the cooperative societies act etc. Some trusts registered under the Indian trust act and others prepare and present the accounts according to their whims and fancies since such laws do not contain provisions relating to accounts. In such cases there is no uniformity in the matter of adoption of accounting practices and thus naturally such organizations prepare accounts according to their own needs and adopt their own practices. Therefore it can be noticed that the accounts prepared and presented are largely statute driven.

#### **METHODS OF ACCOUNTING**

It is a matter of common knowledge that there are two methods of accounting generally followed by the organizations including the MFI's. They are Cash system of accounting and Accrual system of accounting. A hybrid of the above two systems are also followed. In the case of cash system of accounting transactions are recorded when the relative cash receipts are actually received or when the expenses are actually paid out. Accrual system of accounting on the other hand would record transactions as when the right to receive the revenue arises or the liability to pay the expenditure is incurred. It is pertinent to note that under the Companies Act 1956 vide Section 209(3) (b) it is mandatory to follow the accrual system of accounting. It is to be noted that Section 145 of the Income Tax Act allows a person to follow either of the two methods. But accrual basis of accounting would be preferable since the same is more scientific and conceptually superior to cash system. Thus the MFI's are free to choose the method as may be found suitable to them except in the case of MFI's which are companies where it is compulsory to follow accrual system.

#### **APPLICABILITY OF ACCOUNTING STANDARDS**

Accounting standards are designed to apply to the general purpose financial statements and other financial reporting which are subject to the attest function of the members of the Institute of Chartered Accountants of India (ICAI). The ICAI is of the opinion that micro finance activities are of a commercial nature even though the objectives may be charitable or non-profit. Thus the various accounting standards issued by the ICAI are applicable to such MFI's and the same

would help maintaining the uniformity in the presentation of accounts. Even where the same is not applicable still it is recommended that the standards may be followed. As such Accounting Standards (AS) 1 to AS 7 and AS9 to AS31 shall be applicable to MFI'

#### **FORMAT OF PROFIT AND LOSS ACCOUNT (INCOME AND EXPENDITURE ACCOUNT)**

The Income of MFI's can be broadly classified into two groups as stated below.

Income from Financial Services and Other Income.

A) Income from Financial Services would include interest on loan, fees and service charges like training fee, loan processing fee, application fee etc., insurance commission and technical and consultancy fees.

B) Other Income would include grants received from various government and private institutions, interest on investments and miscellaneous income.

#### **FORMAT OF THE BALANCE SHEET**

The Balance sheet of an MFI may be drawn up in the manner described below.

**Sources of Funds** divided into broad 3 categories as Shareholders funds, Loan Funds and Deferred Tax liability. Shareholders' funds may be further divided into share capital or general capital fund and Reserves and surplus. Loan Funds may be classified as secured and unsecured. Those liabilities which fall due within a short period say one year may be shown as current liabilities.

**Application of Funds** divided into categories viz fixed assets, Loans and Advances, Investments, Current assets net of Current liabilities and miscellaneous items including Deferred Tax Assets.

#### **TAXATION ISSUES**

Already stated many of the MFI's are functioning as not-for-profit organizations and thus claim exemption under the Income tax act as organizations for charitable purposes. For this, the MFI's are required to get themselves registered under Section 12A of the said Act. If so the organizations shall be prima facie eligible for exemption from income tax. The claim is based on the ground that the main objectives sought to be achieved through micro finance activities are poverty alleviation and empowerment of rural poor especially women. But, of late, the Income tax department is taking the view that such organizations are not eligible for tax exemption since they are mere money lending agencies and are purely commercial organizations. To add to the existing fire Income tax Act has been amended in 2009 to say that those organizations whose objectives are advancement of any objects of general public utility shall not be eligible for tax exemption if it involves carrying on activities in the nature of trade commerce or business etc. Another issue is relating to non-availability of deductions towards bad debts which is a very normal incident in this area of activities, though NBFC's are required to make provision for the same as per Reserve Bank guidelines.

#### **FINDINGS**

- The Bill seeks to provide a statutory framework to regulate and develop the micro finance industry.
- MFIs are defined as organizations providing micro credit facilities up to Rs 5 lakh, thrift collection services, pension or insurance services, or remittance services.
- The Bill requires that all MFIs to obtain a certificate of registration from the RBI. The applicant needs to have a net owned fund of at least Rs 5 lakh. By 'net owned fund' the Bill means the aggregate of paid up equity capital and free reserves on the balance sheet. The RBI should also be satisfied with the general character or management of the institution.
- Every MFI will have to create a reserve fund and the RBI may specify a percentage of net profit to add to this fund. There can be no appropriation from this fund unless specified by the RBI.
- The RBI has the authority to set the maximum annual percentage rate charged by MFIs and set a maximum limit on the margin MFIs can make. Margin is defined as the difference between the lending rate and the cost of funds (in percentage per annum).
- The Bill provides safeguards against misuse of market dominance by MFIs to charge excessive rates. It allows RBI to set upper limits on lending rates and margins. However, there is no provision for consultation with the Competition Commission of India.
- Any change in the corporate structure of a MFI, such as a shutdown, amalgamation, takeover or restructuring, can only take place with approval from the RBI.
- The Bill allows MFIs to accept deposits. Unlike banks, there is no facility for insuring customer deposits against default by MFIs. The minimum capital requirement is also lower, though RBI may prescribe higher requirements.
- The RBI shall create the Micro Finance Development Fund. Sums raised by the RBI from donors, institutions and the public along with the outstanding balance from the existing Micro Finance Development and Equity Fund form this fund. The central government, after due appropriation from Parliament, may grant money to this fund. The fund can provide loans, grants and other micro credit facilities to any MFI. The Development Fund for MFIs is to be managed by the RBI. The Bill also enables regulatory powers to be delegated to NABARD. Both these provisions could lead to conflict of interest.
- The Bill allows MFIs to provide pension and insurance services. However, it does not provide for regulation by or coordination of RBI with the respective sector regulators.
- The RBI is responsible for redressal of grievances for beneficiaries of micro finance services.
- The Bill allows the RBI to impose a monetary penalty of up to Rs 5 lakhs for any contravention of the Bill's provisions. No civil court will have jurisdiction against any MFI over any penalty imposed by the RBI.
- At the end of every financial year, MFIs are required to provide an annual balance sheet and profit and loss account for audit to the RBI. They will also have to provide a return detailing their activities within 90 days of the Bill being passed.
- The central government has the power to exempt certain MFIs from the provisions of the Bill.
- The Bill empowers the RBI to issue directions to MFIs on prudential norms such as income recognition, accounting standards and capital adequacy which would lead to a great reduction of regulatory uniformity in accounting and taxation issues. Which include:
  - The accounts prepared and presented are largely statute driven.
  - The MFI's are free to choose the method as may be found suitable to them except in the case of MFI's which are companies where it is compulsory to follow accrual system.
  - The ICAI is of the opinion that micro finance activities are of a commercial nature even though the objectives may be charitable or non-profit. Thus the various accounting standards issued by the ICAI are applicable to such MFI's and the same would help maintaining the uniformity in the presentation of accounts. Even where the same is not applicable still it is recommended that the standards may be followed. As such Accounting Standards (AS) 1 to AS 7 and AS9 to AS31 shall be applicable to MFI'
  - MFI's are required to get themselves registered under Section 12A of the income tax act as not for profit organizations (as organizations for charitable purposes) and thus can claim exemption.
  - Another issue is relating to non-availability of deductions towards bad debts which is a very normal incident in this area of activities, though NBFC's are required to make provision for the same as per Reserve Bank guidelines.

#### **CONCLUSION**

The micro finance institutions (development and regulations) Bill 2012 addresses all legal forms of microfinance institutions which includes designation of RBI as the sole regulator and having power to regulate interest rate caps, margin caps, prudential norms, creation of micro finance development fund for investment, training, capacity building etc. The designation of RBI as the sole regulator would be a positive step forward for the sector. Though the specifics of regulation for financial and taxation are yet to be determined. If the bill passes, a great challenge will remain; RBI must effectively regulate and monitor a great number of microfinance institutions that have previously been subject to very little regulation. Let us hope for the best to emerge in the coming years.

## REFERENCES

1. Anon., 1998. *Report on Banking Sector Reforms, Narasimham Committee II*, s.l.: Reserve Bank of India.
2. Anon., August 3, 2012. *Non Banking Financial Company- micro Finance Institution (NBFC-MFIs)-Directions- Modifications,,* s.l.: Reserve Bank of India.
3. Anon., January 2011. *Study on interest Rates and costs of microfinance institutions*, s.l.: Small Industries Development Bank of India.
4. Anon., March 2011. *Statistical Tables relating to Banks in India 2009-10*, s.l.: Reserve Bank of India.
5. Anon., March 26, 2012. *Guidelines on Fair Practices Code for NBFCs*, s.l.: Reserve Bank of India.
6. Anon., May 22, 2012. *Draft of Micro Finance Institution (Development and Regulation Bill, 2012)*. s.l.: s.n.
7. Malegam, Y., January 2011. *Report of the Sub-Committee of the Central Board of Directors of RBI to Issues and Concerns in the MFI Sector*, s.l.: Reserve Bank of India.
8. N.Srinivasan, 2012. *Microfinance India State of the Sector report 2011*, s.l.: SAGE Publications.



**STUDENTS' CRITERIA IN SELECTING A BUSINESS SCHOOL**

**DR. JEEMON JOSEPH**  
**ASSOCIATE PROFESSOR**

**MAR ATHANASIOS COLLEGE FOR ADVANCED STUDIES**  
**KERALA**

**ABSTRACT**

Kerala, the most peopled state in India, has been thriving in Business education with more than 100 Business schools in education sector. Students are being engrossed by these business schools and their various facilities provided for them. In the State, different business schools are alive with different key factors to magnetize the students. In this context, it is imperative to study more about the key factors on which the students are being created a center of attention to select an institute. This study focused on 300 students from different colleges in Kerala and interviewed them to understand what factors they consider while selecting a business school. Different statistical techniques and tests were used to bring the result in a real model and genuine acceptance among the minds of the readers. Several factors such as Infrastructural Facilities, Academic System, updating of Academic Contents, profile of the Faculty Members, Examination conducting and Result publishing, defined relationships in between Students and Faculty Members, Extracurricular Activities at the campus, External communication barriers, Word of mouth of the alumni, Final Placements were identified and directed to test the efficiency level of the business school. Chi-Square test has been used for supporting the results scientifically among the readers.

**KEYWORDS**

Academic Content, Academic System, Business School selection, Students' criteria.

**INTRODUCTION**

The students, along with their parents, converse several factors while they choose a course after UG (under graduate). A spectrum of rewards grants for the well wishes of students by the management of the institutions. But the students usually devise a comparative analysis with the factors like Infrastructural Facilities, Academic System, updating of Academic Contents, profile of the Faculty Members, Examination conducting and Result publishing, defined relationships in between Students and Faculty Members, Extracurricular Activities at the campus, External Communication Barriers, Word of Mouth of the Alumni, Final Placements to turn up at the output whether to select or not a particular institute under their contemplation.

Creativity creates creatures for the new generation and aims at new learners, young managers, special visionaries, and above all, the task masters. Educational institutes must be proficient for doing everything for the prospect of the students for ever. Their programs must be compatible with the present necessities of the society through the updating of syllabus content. Educational institutes must not be acted for the profit making but it should be for the well being of the society and also competent for the shaping and molding of the innate qualities of the students.

In presence of all these, it will be better to analyze the factors on which the educational institutions are more concentrating to attract the students into their institutions also a reverse effect has been taken place in this regard that the students' criteria in selecting a business school for doing their management program. Some institutions provide the best quality management programs with placement assurance for the students on behalf of their high and non-separable fee structure. When we inquire about an educational institute to a student, he has two significant classes with commendable arguments that whether it belongs to Government/ aided or self- financing. Now self- financing colleges are playing vital roles in the structure of management programs than the Government/ aided colleges in Kerala. The dearth in number of aided colleges than the self financing colleges in Kerala is a rock-hard proof and which reminds the fact that aided colleges have to take the inventive- nesses for uplifting the students into their targets. Self financing colleges proffer salary and other benefits for the faculty members only on their academic profiles and on the superfluous competence that they show in the class room. But in Government/ aided colleges, the salary is not an issue for the faculty members as it provides Government for them.

This research paper pinpointed on the ideology that how an educational institute should move from its current situation to an organized situation to achieve the target of adequate enhancement of education.

**LITERATURE REVIEW**

Universities have enjoyed a strong position at the heart of the global economy of knowledge for several years and management/business schools have been one of the major triumph stories in higher education over the last 40 years (Ivory et al. 2006:5, and Mintzberg 2005:377). Adenekan (2009) also recognized that many top business schools are witnessing a rush in applications as diminished job prospects force many people to obtain innovative skills.

Many observers (e.g. Pfeffer and Fong, 2002) propose, however, that business schools are reaching a crossroads in their development. Others go further, with Ivory (2006:5) for example disagreeing that their success story is coming to an end and they are under threat from a number of information. Cornuel (2005) suggests that many are out of touch with business necessities if not business actuality. Stanford's Harold Leavitt (as cited by GRLI, 2005:14) says: *We have built a weird, almost unimaginable design for [business] education that distorts those subjected to it into critters with lopsided brains, icy hearts and shrunken souls.*

Hawawini (2005:774) and Mitroff and Denton (1999:17) dispute that typical business school courses have too strong an importance on quantitative management skills and techniques. Mintzberg's (2005) research into the effectiveness of MBA programmes found them to be too often alert on developing the mental strength and stamina of individuals. Hawawini (2005:774) argues that their teaching wants to focus on what he terms 'societal skills', which contain the need for new paradigms of business thought and consideration of more global issues.

In 2005, Deans at the EFMD Conference (GRLI, 2005:33) were in common conformity, that business schools should do more to influence students so that after graduating they make decisions and behave in ways that reflect globally responsible leadership.

Although Bradshaw (2009) argues that business schools need to give students more insight into what the new role of business will be in the society, he is in agreement with Holland (2009) that this need has already been accepted by some schools and that their teaching has begun to change (Bradshaw 2009b:12). According to preliminary findings from research by the Association of MBAs (as cited by Arkin, 2009:20), a growing number of business schools are now putting business ethics and sustainability at the heart of their MBA programmes. In that research 59% of the 99 business schools surveyed said they covered ethics to a large or very large extent.

Here there arise some questions, in the core of all these, that to what extent the business schools are covering ethics in their business and what is the criterion in selecting a business school by the students as there are a number of business schools are existing in the society.

**IMPORTANCE OF THE STUDY**

Business education is one of the most important factors for attaining a job in the society. For business men this is the way to acquire profits. As a fact, now every institution is diversifying their areas of services into the business school models for maximizing their profit. In this context, it is essential to fabricate a role model of business schools to make quality and superiority assurance among them. When the market goes to the perfect situation, naturally every organization is becoming competitive to overcome and succeed in the industry. So the study focuses on the number of attracting factors with which the students are being attracted to different business schools. Locating on 10 important factors relating to both academic and infrastructural support to be provided by a business

school for the proper functioning of an institute. For making the study as more concussive and concentrated, detailed study was conducted on every factor in order to click on the most vital leading factors taking by the students at the time of their selection of business school. Also this study will be benefited for those who would like to start a business in this sector in future. Then regarding the rivalry among the businesses concentrating on business education, this study will be an insight to select the specific areas where they have to concentrate more to brighten the education in the society. Indeed, the recommendations of this study will come as the bench mark to reduce the competition.

## OBJECTIVES

The objectives of the study are as follows.

- 1) To understand the general mind set of the management/business aspiring students about the institutions, profile of the faculty members etc.
- 2) To understand the role of infrastructural facilities in business education.
- 3) To identify the extent at which the students are impressive with the academic system and content following in a university/ institute.
- 4) To what extent the final placement is affecting in the decision making process of a student.
- 5) To understand the impact of syllabus updating in management programs.
- 6) To conclude the role of the word of mouth of alumni in the process of decision making by the students.

## HYPOTHESIS

- H<sub>01</sub>: Infrastructural facilities have NO significant role to act in the selection of a business school.  
 H<sub>02</sub>: Academic system has NO remarkable role to act in the selection of a college.  
 H<sub>03</sub>: Updating of academic contents has NO significant role to act in the selection of a business school.  
 H<sub>04</sub>: Profile of the faculty members has NO significant role to act in the selection procedure.  
 H<sub>05</sub>: Examination conducting and result publishing have NO essential responsibility in the selection of management programs.  
 H<sub>06</sub>: Relationships in between the students and the faculty members have NO significant role to act in the selection.  
 H<sub>07</sub>: Extracurricular activities at the campus have NO momentous role to act in the selection.  
 H<sub>08</sub>: External communication barriers have NO significant role to act.  
 H<sub>09</sub>: Word of mouth of the alumni has NO significant role to act in the selection criteria.  
 H<sub>010</sub>: Final placement has NO major role to act in the selection.

## RESEARCH METHODOLOGY

In our discussion of self financing and aided colleges, there are assorted factors which stand as affecting factors to catch the attention of students into the campus. Here both self financing and aided colleges are playing their roles in a unique sense so as to get maximum number of students into the campus. In general, when we discuss the credibility of a college, the followings are the key factors which come first for the evaluation. Infrastructural facilities, academic system, updating of academic contents, profile of the faculty members, examination conducting and result publishing, defined relationships in between students and faculty members, extracurricular activities at the campus, external communication barriers, word of mouth of the alumni, final placements are the key factors with which everybody can evaluate the efficiency and the actual worth of a college. Indeed, these factors form the components of the successful campus. In other words, the student's selection criterion towards an educational institute is the function of all these factors.

There fore,  $SSC = f(IF, AS, AC, FM, EC \& RP, R, EA, ECB, WMA, FP)$

**POPULATION:** Any student who belongs to a self financing/ Govt/Aided college in Kerala for management program.

**DATA:** Data are primary in nature for the reliability of the readers.

**SAMPLING TECHNIQUE:** Simple random sampling method was used.

**SAMPLE SIZE:** 300 students were interviewed for collecting the data by means of structured questionnaires, Observation, One- to- One interview etc.

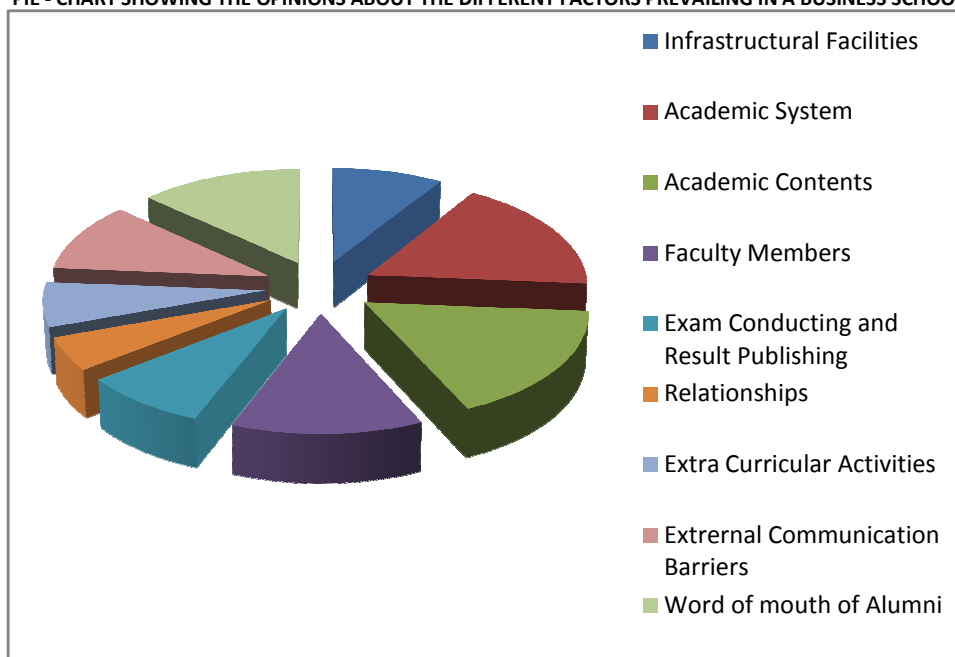
**DATA ANALYSIS:** The study mainly focused on ten different factors to understand the creativity and level of acceptance towards the educational institute by the students. The study designed to fetch these pre-determined factors into a chronological order from the most important to the least important. For making the results, Chi-square test has practiced for testing the hypotheses.

## RESULTS AND DISCUSSIONS

TABLE SHOWING THE OPINIONS ABOUT THE DIFFERENT FACTORS PREVAILING IN A BUSINESS SCHOOL

Chi - Square		With ' IF, AS, AC, FM, EC & RP, R, EA, ECB, WMA, FP '									
		IF	AS	AC	FM	EC&RP	R	EA	WMA	FP	Total
Selection criteria	Influenced	21	41	40	30	20	12	16	25	31	236
	Not Influenced	6	7	6	9	6	9	7	6	8	64
Total		27	50	46	35	23	21	23	36	39	300

PIE - CHART SHOWING THE OPINIONS ABOUT THE DIFFERENT FACTORS PREVAILING IN A BUSINESS SCHOOL



CHI – SQUARE TABLE

SL No.	O	E	(O-E)	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> / E
1	21	21.24	-0.24	0.06	0.003
2	41	39.33	1.67	2.78	0.071
3	40	36.19	3.81	14.54	0.402
4	30	27.53	2.47	6.08	0.221
5	20	18.09	1.91	3.64	0.201
6	12	16.52	-4.52	20.43	1.237
7	16	18.09	-2.09	4.38	0.242
8	25	28.32	-3.32	11.02	0.389
9	31	30.68	0.32	0.10	0.003
10	6	21.24	-15.24	232.26	10.935
11	7	39.33	-32.33	1045.44	26.579
12	6	36.19	-30.19	911.23	25.182
13	9	27.53	-18.53	343.48	12.475
14	6	18.09	-12.09	146.25	8.083
15	9	16.52	-7.52	56.55	3.423
16	7	18.09	-11.09	123.06	6.802
17	6	28.32	-22.32	498.18	17.591
18	8	30.68	-22.68	514.38	16.766
	300				130.604

Here the dependent factor is business school selection and the independent factors are infrastructural facilities, academic system, updating of academic contents, profile of the faculty members, examination conducting and result publishing, defined relationships in between students and faculty members, extracurricular activities at the campus, external communication barriers, word of mouth of the alumni, final placements. Chi – square test was practiced at 5 per cent level of significance. From the analysis of chi-square the following discussions were carried out.

First of all, rejected the null hypotheses at 5 per cent level of significance since chi square calculated value (130.604) is greater than the chi square tabled value (15.507) on 8 degrees of freedom. This decision by means of chi Square testing implies and reminds the importance of those factors used in the analysis. So, the analyzed 10 factors are important while choosing a business school by a student.

The detailed findings about the objectives and the relevance of the most important 9 factors, in the light of the chi square analysis, are as follows.

## FINDINGS

Of 300 respondents, 236 students opined that the said factors have been influencing in the selection of a business school. That is, 78.66 per cent of the total students are being attracted by the aforementioned factors. It is a good symbol for the education institutes that they have to concentrate more on these factors in order to promote the business school. Here for achieving these they can make use of the assistance of UGC (University Grants Commission), AICTE (All India Council for Technical Education) for fund raising. In India they are the major sources of finance for professional education.

Among the influencing factors of the analysis, 'Academic System' leads with 41 students' support and it comes 17 per cent of the total. The factor 'Academic content' is just behind the Academic System with only one point less. That is, 16.9 per cent of total students told about validity and relevance of the factor 'Academic Content' over other factors while choosing a business school. The factors 'Profile of the faculty members' and 'Final placements' have received respectively 30 and 31 points support with 12.7 and 13.1 per cent of the total. It reminds the presentation skill of the faculty members and the ways through which they teach and behave in the class room have the critical role to play in the promotion of a business school. The 'infrastructural facilities' and 'the word of mouth of the alumni' have received the points 21 and 25 respectively. The surveyed students gave only the least importance to both 'relationships' and 'extracurricular activities' and has been supported only with 12 and 16 points of the total of 236 respondents.

Syllabus updating is an activity with which the students are moving with the modernization of the society in a creative manner. More than 70 per cent of the surveyed students told that the syllabus has to be updated at least once in every five years. Technology must have a prominent position in any of the courses. Surveyed 30 students opined that the faculty profile is the pillar stone on which every institution can be built up forever. Considerable number of interviewed students told that there should be a pre-scheduled time table for every course and the universities must be adhered with these time tables for avoiding the time lag in course completion. More than 75 per cent of the surveyed students told that when they choose a college the location of the college is also an important

factor. Above all, the interviewed students argued that the word of mouth of the alumni and the final placements providing for the outgoing students in blue chip companies with excellent salaries leads to the benchmark of an institution and which is the first and foremost factor standing as a decision criteria among the minds of the students when they choose a college for their professional programs.

## SUGGESTIONS / RECOMMENDATIONS

Academic system means the scheme in which abundance of activities are entailing in presence of the fulfillment of the course and by means of the societal need for acquiring the personality development. As per the university regulations, no one can come out from the university strategies and policies. But within the university norms and regulations we can do something fruitfully for the students. The internal question paper can be well orchestrated in such a way that the questions included in the questions papers should be capable of thinking in management perspective and it should be compatible with the real life situations through case studies. Academic system should have a defined routine with prescribed timings with frequent monitoring. Peer group evaluations should also be made mandatory in the internal evaluations so that the students can understand more about them by their friends.

Syllabus updating is an activity with which the students are moving with the modernization of the society in a creative manner. More than 70 per cent of the surveyed students told that the syllabus has to be updated at least once in every five years. Also it must be followed the new challenges and changes took place in the new environmental scenario. Technology must have a prominent position in any of the courses. Learning based exercises must be included in the course content so that the students can understand the real pulses of the world. Finally, the syllabus has to be updated with the core committee formed by experts in the subjects concerned.

Faculty members are the back bone of every educational institution. They can make or break the students. The real affection from the faculty members towards the students is the token of recognition for them in the society. Education is not only the percentage of marks and getting of a job but it stands for the character developments also. Characters can be developed with the pearls and gems from the mouth of the faculty members. Societal value is the end factor of the teaching procedure for both teachers and the students. So the societal values can be molded through education with the eminent endeavors of the teachers. 30 surveyed students opined that faculty contour is the mast stone on which every society can be put up forever.

Proper conducting of examination and timely publishing of results show the way to success in the academic curriculum. According to the interviewed students, more than 80 per cent of them opined that there should be a pre-scheduled time table for every course and the universities must be adhered with these time tables. Also, in between the examination and results there should be a fixed time gap for the respond sheet valuation. Finally, the document (certificate) issuing is also a hurdle for the students in their completion of the entire activities in connection with their courses. There also the university must take remedial actions for the timely dispatching of the mark sheets and certificates.

Effective and efficient relationships in between the students and faculty members pave the good academic ambience in the institution for the students and for shaping their characters.

Extracurricular activities are the junctures where the students can show their talents and innate skills before the public. They can identify and boost these innate qualities for coming up. Then these extra activities have an another impact that it is a recreation for the students from academic packages and will benefit them to fresh up their mind to next version of relaxation.

Furthermore, more than 90 per cent of the surveyed students told that when they choose a college, the location of the college is also one among the most important factors. The college must be in a calm and quiet place to form an academic vibes among the minds of the students. They also told the external communication barriers and the proximity with the public together cause and affect in the smooth functioning of the academics.

## CONCLUSIONS

The academic ambience of an educational institution especially the business schools can be well orchestrated in terms of factors such as: Infrastructural facilities, academic system, updating of academic contents, profile of the faculty members, examination conducting and result publishing, defined relationships in between students and faculty members, extracurricular activities at the campus, external communication barriers, word of mouth of the alumni, final placements. In any of the production system row materials are very important and to be handled with care and prophesy. In the same way the educational institutions can treat these 10 factors as the row materials including with the students for producing the outputs in shaped and molded role models as the tomorrow's intellectuals and compatriots. The educational institutions shouldn't be even thought about the future of the institute in terms of profit but they must be focused on the future of the students. Let them be the Alma matters of the students ever throughout their life. The academic content should be well furnished and polished. Like the slogan of a politician "For the people, by the people and of the people" "we must have a slogan for the teachers and which is "for the students, by the students and of the students".

## REFERENCES

1. Alsbaugh, J. (1994). The relationship between school size, student teacher ratio, and school efficiency. *Education*, 114, 593-597.
2. Barker, R. G. (1968). *Ecological psychology: Concepts and methods for studying the environment*. Stanford, CA: Stanford University Press.
3. Barker, R. G., & Gump, P. V. (1964). *Big school, small school*. Palo Alto, CA: Stanford University Press.
4. Bessent, A., Bessent, W, Kennington, J., & Reagan, B. (1982), "An application of mathematical programming to assess productivity in the Houston Independent School District", *Management Science*, 28(12): 1355-67.
5. Charnes, A., Cooper, WW, & Rhodes, E. (1979), "Measuring the efficiency of decision making units: [short communication]", *European Journal of Operational Research*, 3(4): 339.
6. Charnes, A., Cooper, WW., & Rhodes, E. (1981), "Evaluating program and managerial efficiency: an application of data envelopment analysis to Program Follow Through", *Management Science*, 27(6): 668-97.
7. Chavas, J-P., & Cox TL. (1999), "A generalized distance function and the analysis of production efficiency", *Southern Economic Journal*, 66(2): 294-318.
8. Färe, R., & Primont, D. (1984), "Efficiency measures for multiplant firms", *Operations Research Letters*, 3(5): 257-60.
9. Färe, R., Grosskopf, S., & Lovell, CAK. (1985), "The Measurement of the Efficiency of Production", Boston, MA. Kluwer-Nijhoff.
10. Färe, R., Grosskopf, S., & Lovell, CAK. (1994), "Production Frontiers", Cambridge, UK. Cambridge University Press.
11. Farrell, MJ. (1957), "The measurement of productive efficiency", *Journal of the Royal Statistical Society, A*, III : 253-90.
12. Forsund, FR., Knox-Lovell, CA., & Schmidt, P. (1980), "A survey of frontier production functions and of their relationship to efficiency measurement", *Journal of Econometrics*, 13: 5-25.
13. Lewin, AY., Morey, RC., & Cook, TJ. (1982), "Evaluating the administrative efficiency of courts", *Omega*, 10(4): 401-26.
14. Norton, R., Silkman R., & Sexton, T. (2007), "Accounting for site characteristics in DEA: Leveling the playing field", *International Transactions in Operational Research*, 14: 231-44.
15. Nunamaker, TR. (1983), "Measuring routine nursing service efficiency: a comparison of cost perpatient day and data envelopment analysis models", *Health Services Research*, 18(2):183-205.
16. Pitocco, C., Sexton, T. (2005), "Alleviating blood shortages in a resource-constrained environment", *Transfusion*, 45: 1118-26.
17. Rhodes, EL. (1982), "A study of US National Park Service performance variations: an application of data envelopment analysis", Buffalo (NY): School of Management, State University of New York. Working Paper Series No. 531.
18. Sexton, TR. (1986), "The methodology of data envelopment analysis. In Silkman RH, editor", *Measuring efficiency: an assessment of data envelopment analysis*. San Francisco: Jossey-Bass, New Directions for Program Evaluation, No. 32, p. 7-29.

19. Sexton, TR., Leiken, AM., Nolan, AH., Liss, S., Hogan, AJ., & Silkman RH. (1989), "Evaluating managerial efficiency of veterans administration medical centers using data envelopment analysis", *Medical Care*, 27(12): 1175-88.
20. Sexton, TR., Silkman RH., & Hogan, A. (1986), "Data envelopment analysis: critique and extensions", In Silkman RH editor. *Measuring Efficiency: An Assessment of Data Envelopment Analysis*, San Francisco: Jossey-Bass, New Directions for Program Evaluation, No. 32, p. 73-105.
21. Sexton, TR., Taggart, R., & Sleeper, S. (1994), "Improving pupil transportation in North Carolina", *Interfaces*, 24(1): 87-103.
22. Sherman, HD. (1984), "Hospital efficiency measurement and evaluation: empirical test of a new technique", *Medical Care* 22(10): 922-38.
23. Tavares, G. (2002), "A bibliography of data envelopment analysis (1978-2001)", Piscataway (NJ): Rutgers University, Jan. RUTCOR Research Report No. RRR 01-02.



**CONSUMER BEHAVIOR IN ELECTRONIC BANKING: AN EMPIRICAL STUDY**

**DHARMESH MOTWANI**  
**ASST. PROFESSOR**  
**PACIFIC BUSINESS SCHOOL**  
**UDAIPUR**

**DR. DEVENDRA SHRIMALI**  
**ASSOCIATE PROFESSOR**  
**PACIFIC BUSINESS SCHOOL**  
**UDAIPUR**

**ABSTRACT**

*Introduction of technology in banking sector has enabled customers to avail the banking services at anytime and anywhere in the form of ATM, Mobile banking & Internet Banking. This has not only enhanced the banking business but also has reduced the transaction cost so now a day's Bankers must aware about customers' behavior towards Electronic Banking Services. The paper is based on descriptive research design & questionnaire is used to collect the primary data from banking customers. This paper highlights the Electronic Banking services most preferred by customers & their level of satisfaction towards these services. Conclusions of paper reveal the impact of customers' demographic on their usage of Electronic Banking.*

**KEYWORDS**

Consumer behavior, ATM, Mobile Banking, Internet Banking, Customer satisfaction.

**INTRODUCTION**

From last two decades E-commerce has shown tremendous growth in Indian service sector & banking sector is not exception to it where it is known as E-banking. Now a day's E-banking is the popular technology used by banks which has been defined in many ways but in a simple terms, E-banking is the provision of banking service through electronic channels and the customer can access the data without any time and geographical limitation. ATM was the first well-known machines to provide electronic access to customers of retail banks but later on in the same line Mobile banking & Internet banking facilities were offered by banks.

Under the edge of Electronic Banking following services are offered by Indian Banks:

1. Accessing Accounts ( Mini Statement / Balance Enquiry / Last three transactions)
2. Paying Bills
3. Cheque book request / status of Cheque payment
4. Mobile recharging
5. Fund Transfer
6. Access to loan / credit card statements
7. Making purchases
8. Payment reminders
9. Payment of Tax ( IT or VAT)
10. Contact Customer Care

In the present changing scenario customers demand and expect to be able to transact their financial dealings where and when they wish to & electronic banking has offered them desired solution. Various studies have been conducted by researchers on any one of electronic banking services but very few researches are done on the users of multiple electronic banking services. Hence above research paper mainly focused on various e-banking service users such as ATM, Net banking, Mobile banking users of banks.

**LITERATURE REVIEW**

Bhosle & Nalawade (2012) stated that "Now a days IT technology and its instruments are developing rapidly. It is beneficial for bank to stay in a competition. At present bank customers are increasing hence e-banking play very important role to handle this customer effectively and to reduce the work burden of staff."

Komal & Rani (2012) identified that "Most of the market is still untapped in India especially in rural areas. There is a lot of scope for banking institutions to expand their e-banking services to have a more sophisticated customer base. ICT infrastructure facilities are also not well developed and the banks are unable to extend the e-banking services, therefore, good infrastructure need to be developed."

Kumar & Selvam (2011) Suggested that "Banks should proactively monitor customer' preferences with regard to use of delivery channel for effective response, Bank should focus on important aspects of security and privacy as well as efficient operation of Electronic Banking services."

Joshua & Koshy (2011) found that "Frequency and duration of usage of the respective electronic self-services among ATM users shows that this mode of banking has, in fact, become the most popular one, surpassing the traditional branch banking. However, frequency and duration of the usage of internet banking is a distant second showing that there is much scope for improvement pertaining to its usage, while the same regarding tele banking and mobile banking is only marginal.

Natarajan, Balasubramanian & Manickavasagam (2010) revealed in their study that "ATM is found to be the most preferred channel followed by Internet banking and Mobile banking with more or less equal weights. When it comes to catering various purposes for which SSTs are used, the internet banking is widely used for Service requests, availing information and fund transfer followed by mobile banking and ATM as customers use Internet and mobile for service requests and availing information".

**OBJECTIVE**

The purposes of this research paper are as follow:-

1. To identify the preference of Electronic Banking services used by customers.
2. To check the significant difference between the satisfaction levels of public & private bank customers towards Electronic Banking.
3. To measure the impact of Customers' demographic on the usage rate of Electronic Banking.

**RESEARCH METHODOLOGY**

**(a) Research Design:** - To analyze the behavior of customers towards Electronic Banking descriptive research design was used. Primary data was collected with the help of close ended questionnaire & Interview.

**(b) Sample Design:** - Our target population involves the users of Electronic Banking services i.e. ATM, Mobile Banking & Internet Banking. 140 respondents of SBI (35), PNB (35), HDFC (35) & IDBI (35) were selected through convenience sampling from Udaipur.

**(c) Analysis:** - The data collected was analyzed with the help of various statistical tools like Chi-square test, ANOVA (F-test), Weighted arithmetic mean etc.

**ANALYSIS & INTERPRETATIONS****A) DEMOGRAPHICS OF RESPONDENTS**

Descriptive statistics are illustrated in Table 1, which indicates demographic wise distribution of respondents. 59% respondents are male & majority of customers are graduate (43%). Major number of respondents belongs to the age group of 25 to 35 (34%). Percentage of Private employees is maximum (23%) & 31% of respondents are having monthly income between Rs. 30,001 to 40,000.

**TABLE-1: DEMOGRAPHICS OF RESPONDENTS**

Particulars	Frequency	Percent	Cumulative Percent	Particulars	Frequency	Percent	Cumulative Percent
<b>Gender</b>				<b>Monthly Income</b>			
Male	82	59	59	Less Than Rs. 10,000	10	7	7
Female	58	41	100	Rs. 10,001 - Rs. 20,000	22	16	22
<b>Total</b>	<b>140</b>	<b>100</b>		Rs. 20,001 - Rs. 30,000	42	30	52
<b>Education</b>				Rs. 30,001 - Rs. 40,000	60	30	82
Intermediate	14	10	10	More Than Rs. 40,000	22	17	100
Graduate	60	43	53	<b>Total</b>	<b>140</b>	<b>100</b>	
Post Graduate	36	26	79	<b>Profession / Occupation</b>			
Professional	30	21	100	Govt. Employee	20	14	14
<b>Total</b>	<b>140</b>	<b>100</b>		Pvt. Employee	32	23	37
<b>Age Group</b>				Professional	24	12	66
Below 25	28	20	20	Businessman	20	14	64
25-35	48	34	54	Student	18	13	77
36-50	44	31	85	Retired	8	6	83
51-60	20	15	100	Other	24	17	100
<b>Total</b>	<b>140</b>	<b>100</b>		<b>Total</b>	<b>140</b>	<b>100</b>	

**B) PREFERENCE OF ELECTRONIC BANKING SERVICES**

Table 2 gives the ranking of electronic banking Services used by customers

**TABLE 2: PREFERENCE OF ELECTRONIC BANKING SERVICES**

<b>ATM</b>			<b>Mobile Banking</b>			<b>Internet Banking</b>		
Services	Weighted Mean	Rank	Services	Weighted Mean	Rank	Services	Weighted Mean	Rank
Cash Withdrawal	18.53	1	Balance Enquiry	25.36	1	Account Statement	23.35	1
Balance Enquiry	14.82	3	Mini Statement	24.36	2	Tax Payment	16.82	7
Mini Statement	16.21	2	Fund Transfer	21.89	3	Third Party Transfer	23.29	2
Prepaid Recharge	4.53	11	Mobile Top up	18.78	4	Mobile Top up	19.08	4
Bill Payment	12.53	4	Pay Bill	12.86	5	Pay Bill	19.55	3
Mobile Banking Registration	10.64	7	Cheque Book Request	9.81	6	Cheque Book Request	14.14	8
PIN Change facility	11.36	6	Access to Credit card Statement	9.72	7	Access to Credit card Statement	18.36	5
Single card for all accounts	10.00	8	Contact Customer Care	7.22	8	Customer Care Support	4.14	11
Cheque book request	5.03	9				FD Request & Enquiry	9.35	9
Money Transfer	4.80	10				Change Customer Profile	5.06	10
Deposit Cash & Cheque	11.55	5				Credit Card Payment	16.88	6

Table shows that generally customers use ATM for withdrawal while least priority is given to prepaid recharge. Mobile banking services are mostly used to keep eyes on account, transfers & Payments are on next priority, while least preference is given to customer care services. In the case of Internet Banking most of the customers use this service to check account statement & very few customers avail customer care support through internet banking.

**C) HYPOTHESIS TESTING**

H<sub>01</sub> = There is no significant difference between the satisfaction levels of public & private bank

H<sub>02</sub> = There is no significant difference between the satisfaction levels of public & private bank

H<sub>03</sub> = There is no significant difference between the satisfaction levels of public & private bank

customers towards ATM Service.

customers towards Mobile Banking.

customers towards Internet Banking.

Hypothesis	Electronic Banking	ANOVA (F-ratio)				Result
		Calculated Value	Degree of Freedom	Level of Significance	Tabulated Value	
H <sub>01</sub>	ATM	5.21	(1,4)	5%	7.71	Accepted
H <sub>02</sub>	Mobile Banking	0.339	(1,4)	5%	7.71	Accepted
H <sub>03</sub>	Internet Banking	8.73	(1,4)	5%	7.71	Rejected

The result of the study shows that the null-hypothesis holds to be true for ATM & Mobile banking but not for Internet Banking, which shows that there is no significant difference between the satisfaction levels of public & private bank customers towards ATM & Mobile banking service, but the satisfaction level of public & private bank customers significantly differ in the case of Internet Banking Services.

H<sub>04</sub> = Gender of respondents doesn't affect their usage rate of Electronic Banking services.

H<sub>05</sub> = Age of respondents doesn't affect their usage rate of Electronic Banking services.

H<sub>06</sub> = Income of respondents doesn't affect their usage rate of Electronic Banking services.

H<sub>07</sub> = Education of respondents doesn't affect their usage rate of Electronic Banking services.

Hypothesis	Factor		Test	Calculated Value	Degree Freedom	Level Significance	Tabulated Value	Result
H <sub>04</sub>	Gender	ATM	Chi Square	27.21	2	5%	5.991	Rejected
		Mobile Banking		12.32				
		Internet Banking		19.28				
H <sub>05</sub>	Age	ATM	Chi Square	5.93	2	5%	5.991	Rejected
		Mobile Banking		6.71				
		Internet Banking		6.11				
H <sub>06</sub>	Income	ATM	Chi Square	4.93	2	5%	5.991	Accepted
		Mobile Banking		2.43				
		Internet Banking		5.67				
H <sub>07</sub>	Education	ATM	Chi Square	10.32	6	5%	12.592	Accepted
		Mobile Banking		4.74				
		Internet Banking		11.8				

The result of the study shows that the null-hypothesis holds to be valid for Income & Education, but it has been proved wrong in the case of Gender & Age. So it can be clearly stated that Income & Education of Respondents doesn't affect their usage rate of electronic banking services but Gender & Age do.

## CONCLUSIONS

1. The findings of paper reveals that customers' services preference in Electronic Banking is same as traditional banking. Here also access to account like balance enquiry, account statement etc. are most preferred services.
2. There is no significant difference between the satisfaction level of public & private bank customers towards the ATM & Mobile Banking, but it differs for Internet Banking
3. The usage rate of Electronic Banking is affected by Gender & Age of customers, while Income & Education differences don't have any impact on use of Electronic Banking.

## REFERENCES

1. A J Joshua & Moli P Koshy (2011), Usage Patterns of Electronic Banking Services by Urban Educated Customers: Glimpses from India. Journal of Internet Banking and Commerce, Vol. 16, Issue1 pp 1-12
2. Dr. K. Krishnakumar & V. Selvam (2011), An Empirical Study on Factors Influencing E-banking Services: With Special Reference to ICICI Bank in Gobichettipalayam Town. Zenith International Journal of Multidisciplinary Research Vol.1 Issue 6, pp 131-146
3. Dr. Komal & Dr. Vandna Rani (2012), Progress of Banking in India: Customers' Perspectives, Business Intelligence Journal, Vol.5 Issue 1, pp 28-39
4. Minakshi Bhosale & Dr. K.M. Nalawade (2011), E-Banking Services: Comparative Analysis of Nationalized Banks. Abhinav Journal of Research in Commerce & Management Vol. 1 Issue 11, pp 212-219
5. Thamaraiselvan Natarajan, Senthil Arasu Balasubramanian & Sivagnanasundaram Manickavasagam (2010), Customer's Choice amongst Self Service Technology (SST) Channels in Retail Banking: A Study Using Analytical Hierarchy Process (AHP). Journal of Internet Banking and Commerce, Vol. 15, no.2, pp 1-16

## A NEW NOTION PROXIMITY FOR DATA PUBLISHING WITH PRIVACY PRESERVATION

**S. BOOPATHY**  
**ASST. PROFESSOR**  
**SNS COLLEGE OF ENGINEERING**  
**COIMBATORE**

**P. SUMATHI**  
**ASST. PROFESSOR (SG)**  
**SNS COLLEGE OF ENGINEERING**  
**COIMBATORE**

**ABSTRACT**

*Publishing data about individuals without revealing sensitive information about them is an important problem. k-anonymity has been proposed as a mechanism for protecting privacy in microdata publishing. In recently, several authors have recognized that k-anonymity cannot prevent attribute disclosure. To address this limitation the notion of l-diversity has been proposed, which requires the distribution of a sensitive attribute in each equivalence class has at least l well represented values. k-anonymity and l-diversity make it harder for the attacker to figure out private associations. But they still give away some knowledge and they do not give any guarantees on the amount of data being disclosed. Here, our analysis shows that k-anonymity and l-diversity has a number of limitations like homogeneity attack and background knowledge of the attacker. Motivated by these limitations in k-anonymity and l-diversity, we propose a novel notion of privacy called "Proximity", in which we first present the base model "t-closeness", which requires that the distribution of a sensitive attribute in any equivalence class is close to the distribution of the attribute in the overall table. Then secondly the flexible privacy model called (n, t)- Proximity is proposed. Finally we describe the desiderata for designing the distance measure and the Earth Mover's Distance measure is used to measure the distance between two probabilistic distributions.*

**KEYWORDS**

privacy preservation, data publishing, data security, data anonymization.

**1. INTRODUCTION**

Agencies and many other organizations often need to publish microdata – tables that contain unaggregated information about individuals. These tables can include medical data, voter registration data, census data and customer data. Microdata is a valuable source of information for the research and allocation of public funds, trend analysis and medical research. Typically, such data is stored in a table, and each record or row corresponds to one individual. Each record has a number of attributes, which can be classified into explicit identifiers, quasi-identifiers and sensitive attributes.

When releasing microdata, it is necessary to prevent the sensitive information of individuals from being disclosed. Two types of information disclosure have been identified in the literature [1], [2]: identity disclosure and attribute disclosure. Identity disclosure occurs when an individual is linked to a particular record in the released table. Attribute disclosure occurs when new information about some individuals is revealed. While the released table gives useful information to researchers, it presents disclosure risk to the individuals whose data are in the table. Therefore, our objective is to limit the disclosure risk to an acceptable level while maximizing the benefit. This is achieved by anonymizing the data before release. The first step of anonymization is to remove the explicit identifiers. However, this is not enough, as an adversary may already know the quasi-identifier values of some individuals in the table. This knowledge can be either from personal knowledge (e.g., knowing a particular individual in person), or from other publicly available databases (e.g., a voter registration list) that include both explicit identifiers and quasi-identifiers.

We need to measure the disclosure risk of an anonymized table to effectively limit disclosure. Samarati [3] and Sweeney [4] introduced k-anonymity, which requires that each equivalence class contains at least k-records. While k-anonymity protects against identity disclosure, it is insufficient to prevent attribute disclosure. To address this limitation k-anonymity, Machanavajjhala [5] introduced a new privacy, called l-diversity, which requires that the distribution of a sensitive attribute in each equivalence class has at least l well-represented values. The problem with the l-diversity is that it is limited in its assumption of adversarial knowledge. Meaning, it is possible for an adversary to gain information about a sensitive attribute as long as he has information about the global distribution of this attribute. This assumption generalizes the specific background and homogeneity attacks used to motivate l-diversity. In general, a problem with privacy preserving methods, is that they effectively assume all attributes to be categorical; the adversary either does or does not learn something sensitive. Here, in this paper, we propose a novel a new privacy notion called "proximity." We first formalize the idea of global background knowledge and use as the base model as t-closeness. This model requires that the distribution of sensitive attribute in any equivalence class to be close to the distribution of the attribute in the overall table. The distance between the two distributions should be no more than a threshold t. This effectively limits the amount of individual-specific information an observer can learn. However, an analysis on data utility shows that t-closeness substantially limits the amount of useful information that can be extracted from the released data. Based on the analysis, we propose a more flexible privacy model called (n, t)-proximity, which requires that the distribution in any equivalence class is close to the distribution in a large-enough equivalence class with respect to the sensitive attribute. That is the distance between the two distributions should be no more than a threshold t and the equivalence class contains at least n records. This limits the amount of sensitive information about individuals while preserves features and patterns about large groups. Our analysis shows that (n, t)-proximity achieves a better balance between privacy and utility than existing privacy models such as k-anonymity, l-diversity and t-closeness.

Measuring the values of distance between sensitive attributes is a core task. Here we use the Earth Mover Distance metric [6] to measure the distance between two distributions. We also show that Earth Mover Distance has its limitations and describe our desiderata for designing the distance measure. Finally, we evaluate the effectiveness of the (n, t)-proximity model in both privacy protection and utility preservation through experiments on a real data set.

**2. K-ANONYMITY AND L-DIVERSITY**

The protection k-anonymity provides is simple and easy to understand. If a table satisfies k-anonymity for some value k, then anyone who knows only the quasi-identifier values of one individual cannot identify the record corresponding to that individual with confidence greater than 1/k. While k-anonymity protects against identity disclosure, it does not provide sufficient protection against attribute disclosure. This has been recognized by several authors [5], [7], [8]. Two attacks were identified in [5]: the homogeneity attack and the background knowledge attack. Let us first show the two attacks with an example to give the intuition behind the problems with k-anonymity.

Example 1. Table 1 shows medical records from a fictitious hospital located in upstate New York. Note that the table contains no uniquely identifying attributes like name, social security number, etc. In this example, we divide the attributes into two groups: the sensitive attributes (consisting only of medical condition/disease) and the non-sensitive attributes (zip code, age). An attribute is marked sensitive if an adversary must not be allowed to discover the value of that attribute for any individual in the dataset. Attributes not marked sensitive are non-sensitive. Furthermore, let the collection of attributes {zip code, age} be

the quasi-identifier for this dataset. Table 2 shows a 3-anonymous table derived from the table 1 (here “\*” denotes a suppressed value so, for example, “zip code = 1485\*” means that the zip code is in the range (14850 – 14859) and “age=3\*” means the age is in the range (30 – 39)). Note that in the 3-anonymous table, each tuple has the same values for the quasi-identifier as at least two other tuples in the table.

TABLE 1: ORIGINAL INPATIENT MICRODATA

	Non-Sensitive		Sensitive
	Zip Code	Age	Disease
1	98677	29	Heart Disease
2	98602	22	Heart Disease
3	98678	27	Heart Disease
4	98905	43	Flu
5	98909	52	Heart Disease
6	98906	47	Cancer
7	98605	30	Heart Disease
8	98673	36	Cancer
9	98607	32	Cancer

TABLE 2: A 3-ANONYMOUS INPATIENT MICRODATA

	Non-Sensitive		Sensitive
	Zip Code	Age	Disease
1	986*	2*	Heart Disease
2	986*	2*	Heart Disease
3	986*	2*	Heart Disease
4	9890*	≥ 40	Flu
5	9890*	≥ 40	Heart Disease
6	9890*	≥ 40	Cancer
7	986*	3*	Heart Disease
8	986*	3*	Cancer
9	986*	3*	Cancer

## 2.1 ATTACKS ON K-ANONYMITY

**Homogeneity Attack:** Suppose John knows that James is a 27-year man living in ZIP 98678 and James’s record is in the table. From Table 2, John can conclude that James corresponds to one of the first three records, and thus, must have heart disease.

**Observation 1 k-Anonymity** can create groups that leak information due to lack of diversity in the sensitive attribute.

**Background Knowledge Attack:** Suppose that by knowing Roy’s age and zip code, John can conclude that Roy corresponds to a record in the last equivalence class Table 2. Furthermore, suppose John knows that Roy has a very low risk for heart disease. This background knowledge enables John to conclude that Roy most likely has cancer.

**Observation 2 k-Anonymity** does not protect against attacks based on background knowledge.

To address these limitations of k-anonymity, Machanavajjhala [5] introduced l-diversity as a stronger notion of privacy.

## 2.2 THE L-DIVERSITY PRINCIPLE

An equivalence class is said to have l-diversity if there are at least l “well-represented” values for the sensitive attribute. A table is said to have l-diversity if every equivalence class of the table has l-diversity. Machanavajjhala [5] gave a number of interpretations of the term “well represented” in this principle: Distinct l-diversity, Probabilistic l-diversity, Entropy l-diversity and Recursive (c, l)-diversity.

## 3 THE L-DIVERSITY LIMITATIONS

While the l-diversity principle represents an important step beyond k-anonymity in protecting against attribute disclosure, it has several shortcomings that we now discuss.

l-diversity may be difficult to achieve and may not provide sufficient privacy protection.

**Example 2.** Suppose that the original data have only one sensitive attribute: the test result for a particular virus. It takes two values: positive and negative. Further, suppose that there are 10000 records, with 99 percent of them being negative, and only 1 percent being positive. Then, the two values have very different degrees of sensitivity. One would not mind being known to be tested negative, because then one is the same as 99 percent of the population, but one would not want to be known/considered to be tested positive. In this case, 2-diversity does not provide sufficient privacy protection for an equivalence class that contains only records that are negative. In order to have a distinct 2-diverse table, there can be at most  $10000 \times 1\% = 100$  equivalence classes and the information loss would be large. Also, observe that because the entropy of the sensitive attribute in the overall table is very small, if one uses entropy l-diversity, l must be set to a small value.

l-diversity is insufficient to prevent attribute disclosure. Below, we present two attacks on l-diversity.

**Skewness attack:** When the overall distribution is skewed, satisfying that l-diversity does not prevent attribute disclosure. Consider again Example 2. Suppose that one equivalence class has an equal number of positive records and negative records. It satisfies distinct 2-diversity, entropy 2-diversity, and any recursive (c, 2)-diversity requirement that can be imposed. However, this presents a serious privacy risk, because anyone in the class would be considered to have 50 percent possibility of being positive, as compared with the 1 percent of the overall population. Now, consider an equivalence class that has 49 positive records and only 1 negative record. It would be distinct 2-diverse and has higher entropy than the overall table (and thus, satisfies any Entropy l-diversity that one can impose), even though anyone in the equivalence class would be considered 98 percent positive, rather than 1 percent. In fact, this equivalence class has exactly the same diversity as a class that has 1 positive and 49 negative records, even though the two classes present very different levels of privacy risks.

**Similarity attack:** When the sensitive attribute values in an equivalence class are distinct but semantically similar, an adversary can learn important information. Consider the following example:

**Example 3.** Table 3 is the original table, and Table 4 shows an anonymized version satisfying distinct and entropy 3-diversity. There are two sensitive attributes: Salary and Disease. Suppose one knows that James’s record corresponds to one of the first three records, then one knows that James’s salary is in the range [3K-5K] and can infer that James’s salary is relatively low. This attack applies not only to numeric attributes like “Salary,” but also to categorical attributes like “Disease.” Knowing that James’s record belongs to the first.

TABLE 3: ORIGINAL SALARY/DISEASE MICRODATA

	Non-Sensitive		Sensitive	
	Zip Code	Age	Salary	Disease
1	98677	29	3K	Gastric Ulcer
2	98602	22	4K	Gastritis
3	98678	27	5K	Stomach Cancer
4	98905	43	6K	Gastritis
5	98909	52	11K	Flu
6	98906	47	8K	Bronchitis
7	98605	30	7K	Bronchitis
8	98673	36	9K	Pneumonia
9	98607	32	10K	Stomach Cancer

TABLE 4: A 3-DIVERSE SALARY/DISEASE MICRODATA

	Non-Sensitive		Sensitive	
	Zip Code	Age	Salary	Disease
1	986**	2*	3K	Gastric Ulcer
2	986**	2*	4K	Gastritis
3	986**	2*	5K	Stomach Cancer
4	9890*	≥ 40	6K	Gastritis
5	9890*	≥ 40	11K	Flu
6	9890*	≥ 40	8K	Bronchitis
7	986**	3*	7K	Bronchitis
8	986**	3*	9K	Pneumonia
9	986**	3*	10K	Stomach Cancer

equivalence class enables one to conclude that James has some stomach-related problems, because all three diseases in the class are stomach-related. This leakage of sensitive information occurs because while l-diversity requirement ensures “diversity” of sensitive values in each group, it does not take into account the semantical closeness of these values. In short, distributions that have the same level of diversity may provide very different levels of privacy, because there are semantic relationships among the attribute values, because different values have very different levels of sensitivity, and privacy is also affected by the relationship with the overall distribution.

#### 4 A NEW PRIVACY MEASURE PROXIMITY

Intuitively, privacy is measured by the information gain of an observer. Before seeing the released table, the observer has some prior belief about the sensitive attribute value of an individual. After seeing the released table, the observer has a posterior belief. Information gain can be represented as the difference between the posterior belief and the prior belief. The new thing of our approach is that we separate the information gain into two parts: that about the population in the released data and about specific individuals.

##### 4.1 BASE MODEL: t-CLOSENESS

To motivate our approach, let us perform the following thought experiment: First, an observer has some prior belief  $B_0$  about an individual's sensitive attribute. Then, in a hypothetical step, the observer is given a completely generalized version of the data table where all attributes in a quasi-identifier are removed (or, equivalently, generalized to the most general values). The observer's belief is influenced by  $Q$ , the distribution of the sensitive attribute values in the whole table, and changes to belief  $B_1$ . Finally, the observer is given the released table. By knowing the quasi-identifier values of the individual, the observer is able to identify the equivalence class that the individual's record is in, and learn the distribution  $P$  of sensitive attribute values in this class. The observer's belief changes to  $B_2$ .

The l-diversity requirement is motivated by limiting the difference between  $B_0$  and  $B_2$  (although it does so only indirectly, by requiring that  $P$  has a level of diversity). We choose to limit the difference between  $B_1$  and  $B_2$ . In other words, we assume that  $Q$ , the distribution of the sensitive attribute in the overall population in the table, is public information. We do not limit the observer's information gain about the population as a whole, but limit the extent to which the observer can learn additional information about specific individuals. To justify our assumption that  $Q$  should be treated as public information, we observe that with generalizations, the most one can do is to generalize all quasi-identifier attributes to the most general value.

Thus, as long as a version of the data is to be released, a distribution  $Q$  will be released. We also argue that if one wants to release the table at all, one intends to release the distribution  $Q$  and this distribution is what makes data in this table useful. In other words, one wants  $Q$  to be public information. A large change from  $B_0$  to  $B_1$  means that the data table contains a lot of new information, e.g., the new data table corrects some widely held belief that was wrong. In some sense, the larger the difference between  $B_0$  and  $B_1$  is, the more valuable the data is. Since the knowledge gain between  $B_0$  and  $B_1$  is about the population the data set is about, we do not limit this gain. We limit the gain from  $B_1$  to  $B_2$  by limiting the distance between  $P$  and  $Q$ . Intuitively, if  $P = Q$ , then  $B_1$  and  $B_2$  should be the same. If  $P$  and  $Q$  are close, then  $B_1$  and  $B_2$  should be close as well, even if  $B_0$  may be very different from both  $B_1$  and  $B_2$ .

##### 4.2 A FLEXIBLE PRIVACY MODEL (N, T)-PROXIMITY

First, we illustrate that t-closeness limits the release of useful information through the following example.

Example 4. Table 5 is the original data table containing 3000 individuals, and Table 6 is an anonymized version of it. The Disease attribute is sensitive and there is a column called Count that indicates the number of individuals. The probability of cancer among the population in the data set is  $700 / 3 = 0.23$ , while the probability of cancer among individuals in the first equivalence class is as high as  $300 / 600 = 0.5$ . Since  $0.5 - 0.23 > 0.1$ , the anonymized table does not satisfy 0.1-closeness.

To achieve 0.1-closeness, all tuples in Table 5 have to be generalized into a single equivalence class. This results in substantial information loss. If we examine the original data in Table 5, we can discover that the probability of cancer among people living in zip code 986\*\* is as high as  $500 / 1000 = 0.5$ , while the probability of cancer among people living in zip code 989\*\* is only  $200 / 2000 = 0.1$ . The important fact that people living in zip code 986\*\* have a much higher rate of cancer will be hidden if 0.1-closeness is enforced.

TABLE 5: ORIGINAL INPATIENTS MICRODATA

	Non-Sensitive		Sensitive	Non-Sensitive
	ZIP Code	Age	Disease	Count
1	98673	29	Cancer	100
2	98674	21	Flu	100
3	98605	25	Cancer	200
4	98602	23	Flu	200
5	98905	43	Cancer	100
6	98904	48	Flu	900
7	98906	47	Cancer	100
8	98907	41	Flu	900
9	98603	34	Cancer	100
10	98605	30	Flu	100
11	98602	36	Cancer	100
12	98607	32	Flu	100

TABLE 6: AN ANONYMOUS VERSION OF TABLE 5 (0.1-CLOSENESS)

	Non-Sensitive		Sensitive	Non-Sensitive
	ZIP Code	Age	Disease	Count
1	986**	2*	Cancer	300
2	986**	2*	Flu	300
3	989**	4*	Cancer	200
4	989**	4*	Flu	1800
5	986**	3*	Cancer	200
6	986**	3*	Flu	200

The  $(n, t)$ -Proximity Principle: An equivalence class  $E_1$  is said to have  $(n, t)$ -proximity if there exists a set  $E_2$  of records that is a natural superset of  $E_1$  such that  $E_2$  contains at least  $n$  records, and the distance between the two distributions of the sensitive attribute in  $E_1$  and  $E_2$  is no more than a threshold  $t$ . A table is said to have  $(n, t)$ -proximity if all equivalence class have  $(n, t)$ -proximity.

The intuition is that it is okay to learn information about a population of a large-enough size (at least  $n$ ). One key term in the above definition is “natural superset”. Assume that we want to achieve  $(1000, 0.1)$ -proximity for the above example. The first equivalence class  $E_1$  is defined by (zip code = “986\*\*”,  $20 \leq \text{Age} \leq 29$ ) and contains 600 tuples. One equivalence class that naturally contains it would be the one defined by (zip code = “986\*\*”,  $20 \leq \text{Age} \leq 39$ ). Another such equivalence class would be the one defined by (zip code = “98\*\*”,  $20 \leq \text{Age} \leq 29$ ). If both of the two large equivalence classes contain at least 1000 records, and  $E_1$ 's distribution is close to (i.e., the distance is at most 0.1) either of the two large equivalence classes, then  $E_1$  satisfies  $(1000, 0.1)$ -proximity.

In the above definition of the  $(n, t)$ -proximity principle, the parameter  $n$  defines the breadth of the observer's background knowledge. A smaller  $n$  means that the observer knows the sensitive information about a smaller group of records. The parameter  $t$  bounds the amount of sensitive information that the observer can get from the released table. A smaller  $t$  implies a stronger privacy requirement. In fact, Table 6 satisfies  $(1000, 0.1)$ -proximity. The second equivalence class satisfies  $(1000, 0.1)$ -proximity because it contains  $2000 > 1000$  individuals, and thus, meets the privacy requirement (by setting the large group to be itself). The first and the third equivalence classes also satisfy  $(1000, 0.1)$ -proximity because both have the same distribution (the distribution is  $(0.5, 0.5)$ ) as the large group which is the union of these two equivalence classes and the large group contains 1000 individuals.

Choosing the parameters  $n$  and  $t$  would affect the level of privacy and utility. The larger  $n$  is and the smaller  $t$  is, one achieves more privacy and less utility. By using specific parameters for  $n$  and  $t$ , we are able to show the relationships between  $(n, t)$ -proximity with existing privacy models such as  $k$ -anonymity and  $t$ -closeness.

Finally, there is another natural definition of  $(n, t)$ -proximity, which requires the distribution of the sensitive attribute in each equivalence class to be close to that of all its supersets of sizes at least  $n$ . We point out that this requirement may be too strong to achieve and may not be necessary. Consider an equivalence class ( $50 \leq \text{Age} \leq 60$ , Sex = “Male”) and two of its supersets ( $50 \leq \text{Age} \leq 60$ ) and (Sex = “Male”), where the sensitive attribute is “Disease.” Suppose that the Age attribute is closely correlated with the Disease attribute but Sex is not. The two supersets may have very different distributions with respect to the sensitive attribute: the superset (Sex = “Male”) has a distribution close to the overall distribution but the superset ( $50 \leq \text{Age} \leq 60$ ) has a very different distribution. In this case, requiring the distribution of the equivalence class to be close to both supersets may not be achievable. Moreover, since the Age attribute is highly correlated with the Disease attribute, requiring the distribution of the equivalence class ( $50 \leq \text{Age} \leq 60$ , Sex = “Male”) to be close to that of the superset (Sex = “Male”) would hide the correlations between Age and Disease.

## 5 ANONYMIZATION ALGORITHMS AND DISTANCE MEASURES

One challenge is designing algorithms for anonymizing the data to achieve  $(n, t)$ -proximity. In this section, we describe how to adapt the Mondrian [9] multidimensional algorithm for our  $(n, t)$ -proximity model. The algorithm consists of three components: 1) Choosing a dimension on which to partition, 2) Choosing a value to split and 3) Checking if the partitioning violates the privacy requirement.

### 5.1 COMPONENTS 1 AND 2; CHOOSING A DIMENSION AND A VALUE TO SPLIT (TOP-DOWN GREEDY ALGORITHM FOR STRICT MULTIDIMENSIONAL PARTITIONING)

1. Anonymize(partition)
2. if (no allowable multidimensional cut for partition)
3. return  $\phi$  : partition  $\rightarrow$  summary
4. else
5. dim  $\leftarrow$  choose dimension()
6. fs  $\leftarrow$  frequency\_set(partition, dim)
7. splitVal  $\leftarrow$  find\_median(fs)
8. lhs  $\leftarrow$  {t  $\in$  partition : t.dim  $\leq$  splitVal}
9. rhs  $\leftarrow$  {t  $\in$  partition : t.dim  $>$  splitVal}
10. return Anonymize(rhs)  $\cup$  Anonymize(lhs)

### 5.2 Component 3; Checking if the partitioning violates the privacy requirement

1. Let  $P$  be a set of tuples
2.  $P$  is partitioned into  $r$  partitions  $\{P_1, P_2, \dots, P_r\}$
3. for every  $p_i$
4. if  $P_i(1 \leq i \leq r)$
5. find = true
6. if  $P_i(1 \leq i \leq r)$

```

7.    find = false
8.    for every Q ∈ Parent(P) and |Q| ≥ n
9.    if D[P, Q] ≤ t
10.   find = true
11.   if find == false
12.   return false
13.   return true

```

### 5.3 DISTANCE MEASURES

The Earth Mover's Distance (EMD) is used to measure the distance between two probabilistic distributions, which is based on the minimal amount of work needed to transform one distribution to another by moving distribution mass between each other. Intuitively, one distribution is seen as a mass of earth spread in the space and the other as a collection of holes in the same space. EMD measures the least amount of work needed to fill the holes with earth. A unit of work corresponds to moving a unit of earth by a unit of ground distance. EMD can be formally defined using the well-studied transportation problem.

Let  $P = (p_1, p_2, p_3, \dots, p_m)$ ,  $Q = (q_1, q_2, q_3, \dots, q_m)$ , and  $d_{ij}$  be the ground distance between element  $i$  of  $P$  and element  $j$  of  $Q$ . We want to find a flow  $F = [f_{ij}]$ , where  $f_{ij}$  is the flow of mass from element  $i$  of  $P$  to element  $j$  of  $Q$  that minimizes the overall work.

$$\text{WORK}(P, Q, F) = \sum_{i=1}^m \sum_{j=1}^m d_{ij} f_{ij},$$

Subject to the following constraints,

$$f_{ij} \geq 0, 1 \leq i \leq m, 1 \leq j \leq m, \quad (\text{e1})$$

$$p_i - \sum_{j=1}^m f_{ij} + \sum_{j=1}^m f_{ji} = q_i, 1 \leq i \leq m, \quad (\text{e2})$$

$$\sum_{i=1}^m \sum_{j=1}^m f_{ij} = \sum_{i=1}^m p_i = \sum_{i=1}^m q_i = 1. \quad (\text{e3})$$

These three constraints guarantee that  $P$  is transformed to  $Q$  by the mass flow  $F$ . Once the transformation problem is solved, the EMD is defined to be the total work.

$$D[P, Q] = \text{WORK}(P, Q, F) = \sum_{i=1}^m \sum_{j=1}^m d_{ij} f_{ij}.$$

More generally, the EMD is the work divided by the total flow. However, since we are calculating distance between two probability distributions, the total flow is always 1, as shown in e3. Now we derive formulas for calculating Earth Mover's Distance for the special cases that we need to consider. The EMD for numerical attributes: let  $r_i = p_i - q_i$ , ( $i = 1, 2, \dots, m$ ), then the distance between  $P$  and  $Q$  can be calculated as

$$D[P, Q] = \frac{1}{m-1} (|r_1| + |r_1 + r_2| + \dots + |r_1 + r_2 + \dots + r_{m-1}|)$$

$$= \frac{1}{m-1} \sum_{i=1}^{i=m} \left| \sum_{j=1}^{j=i} r_j \right|$$

and the EMD for categorical attributes can be calculated as

$$D[P, Q] = \frac{1}{2} \sum_{i=1}^{i=m} |p_i - q_i| = \sum_{p_i \geq q_i} (p_i - q_i) = \sum_{p_i < q_i} (q_i - p_i)$$

### 5.4 PROXIMITY WITH EMD – ANALYSIS

Going back to the example 3,

$Q = \{3k, 4k, 5k, 6k, 7k, 8k, 9k, 10k, 11k\}$ ,

$P_1 = \{3k, 4k, 5k\}$  and  $P_2 = \{6k, 8k, 11k\}$

Now we calculate  $D[P_1, Q]$  and  $D[P_2, Q]$  using EMD.

Let  $v_1 = 3k, v_2 = 4k, v_3 = 5k, v_4 = 6k, v_5 = 7k, v_6 = 8k, v_7 = 9k, v_8 = 10k, v_9 = 11k$ , the distance between  $v_i$  and  $v_j$  to be  $|i - j|/8$ ; that is one optimal mass flow that transforms  $P_1$  to  $Q$  is to move  $1/9$  probability mass across the following pairs:  $(5k \rightarrow 11k), (5k \rightarrow 10k), (5k \rightarrow 9k), (4k \rightarrow 8k), (4k \rightarrow 7k), (4k \rightarrow 6k), (3k \rightarrow 5k), (3k \rightarrow 4k)$  the cost of this is  $1/9 \times (6 + 5 + 4 + 4 + 3 + 2 + 2 + 1)/8 = 27/72 = 3/8 = 0.375$ .

Thus the maximal distance is 1. We have  $D[P_1, Q] = 0.375$  and  $D[P_2, Q] = 0.167$ .

**TABLE 7: INPATIENT MICRODATA WITH T-CLOSSNESS AND PROXIMITY WITH RESPECT TO SALARY AND DISEASE**

	Non-Sensitive		Sensitive	
	Zip Code	Age	Salary	Disease
1	9867*	≤ 40	3K	Gastric Ulcer
2	9867*	≤ 40	5K	Stomach Cancer
3	9867*	≤ 40	9K	Pneumonia
4	9890*	≥ 40	6K	Gastritis
5	9890*	≥ 40	11K	Flu
6	9890*	≥ 40	8K	Bronchitis
7	9860*	≤ 40	4K	Gastritis
8	9860*	≤ 40	7K	Bronchitis
9	9860*	≤ 40	10K	Stomach Cancer

The Table 7 shows the anonymized version of Table 3. It has 0.167 closeness with respect to Salary and 0.278 closeness with respect to the Disease. The similarity attack is prevented in the above version of table. So here we note that  $t$ -closeness and  $(n, t)$ -proximity protect against attribute disclosure. But it does not deal with the identity disclosure. Thus, it may be desirable to use both  $(n, t)$ -proximity and  $k$ -anonymity. Further it should be noted that  $(n, t)$ -proximity deals with the homogeneity and background knowledge attacks.

## 6 CONCLUSIONS

While k-anonymity protects against identity disclosure, it does not provide sufficient protection against attribute disclosure. The notion of l-diversity attempts to solve this problem. We have shown that l-diversity has a number of limitations and especially presented two attacks on l-diversity. Motivated by these limitations, we have proposed a new privacy notion called "proximity." We propose two instantiations: a base model called t-closeness and a more flexible privacy model called (n, t)-proximity. We explain the rationale of the (n, t)-proximity model and show that it achieves a better balance between privacy and utility.

## 7 REFERENCES

1. A. Machanavajjhala, J. Gehrke, D. Kifer, and M. Venkatasubramanian, "l-Diversity: Privacy Beyond k-Anonymity," Proc. Int'l Conf. Data Eng. (ICDE), p. 24, 2006.
2. D. Lambert, "Measure of Disclosure Risk and Harm," J. Official Statistical, vol. 9, pp. 313-331, 1993.
3. G.T. Duncan and D. Lambert, "Disclosure-Limited Data Dissemination," J. Am. Statistical Assoc., vol. 81, pp. 10-28, 1986.
4. K. LeFevre, D. DeWitt, and R. Ramakrishnan, "Mondrian Multidimensional k-Anonymity," ICDE, p. 25, 2006.
5. L. Sweeney, "k-Anonymity: A Model for Protecting Privacy," Int'l J. Uncertainty, Fuzziness and Knowledge-Based Systems, vol. 10, no. 5, pp. 557-570, 2002.
6. P. Samarati, "Protecting Respondent's Privacy in Microdata Release," IEEE Trans. Knowledge and Data Eng., vol. 13, no. 6, pp. 1010-1027, Nov./Dec. 2001.
7. T.M. Truta and B. Vinay, "Privacy Protection: P-Sensitive k-Anonymity Property," Proc. Int'l Workshop Privacy Data Management (ICDE Workshops), 2006.
8. X. Xiao and Y. Tao, "Personalized Privacy Preservation," Proc. ACM SIGMOD, pp. 229-240, 2006.
9. Y. Rubner, C. Tomasi, and L.J. Guibas, "The Earth Mover's Distance as a Metric for Image Retrieval," Int'l J. Computer Vision, vol. 40, no. 2, pp. 99-121, 2000.



## A STUDY ON ATTITUDE TOWARDS KNOWLEDGE SHARING AMONG KNOWLEDGE WORKERS IN EDUCATIONAL INSTITUTIONS IN MYSORE CITY

**NITHYA GANGADHAR**

**ASST. PROFESSOR**

**JSS CENTRE FOR MANAGEMENT STUDIES**

**JSS TECHINAL INSTITUTIONS CAMPUS**

**SRI JAYACHAMARAJENDRA COLLEGE OF ENGINEERING**

**MYSORE**

**SINDU KOPPA**

**ASST. PROFESSOR**

**JSS CENTRE FOR MANAGEMENT STUDIES**

**JSS TECHINAL INSTITUTIONS CAMPUS**

**SRI JAYACHAMARAJENDRA COLLEGE OF ENGINEERING**

**MYSORE**

### ABSTRACT

*As the world moves towards a 'Knowledge-Based Economy', Knowledge today is regarded as a factor of production together with land, labor and capital. Academicians have shown inhibition to share. In many cases, they even discourage such sharing. So, Knowledge Sharing must be seen in relation to the overall development of the intellectual and moral aspects of the teaching profession. Against this background, the proposed paper intends to focus on the knowledge processing aspect with greater emphasis on knowledge sharing in educational institutes. The study is proposed to be conducted to understand general attitude of knowledge workers towards knowledge sharing, knowledge workers barriers to share knowledge and knowledge workers views towards strategies to encourage knowledge sharing. The study being empirical, adopts structured questionnaire based survey method to collect primary data through convenient sampling technique among knowledge workers in the B-Schools and Engineering colleges in the Mysore city. Educational institutions are placed in the critical role of knowledge production. The knowledge so produced by individuals should be translated into organizational knowledge. This requires knowledge sharing. The paper hopes to provide useful insights into how knowledge is being shared and the strategies for promoting knowledge sharing.*

### KEYWORDS

Knowledge Management, Knowledge Sharing, Knowledge Workers, Attitudes, Educational Institutes, Academicians.

### 1. INTRODUCTION

As the 21st century unfolds, many people regard the strategic management of knowledge resources as one of the key factors for sustainable competitive advantage. In particular, knowledge sharing is perceived to be the most essential process for knowledge management. Successful knowledge intensive firms, gain competitive advantage from the human and social capital, which make up their unique trading assets<sup>1</sup>. Human capital includes individual tacit and explicit knowledge<sup>2</sup> brought into the organization through its knowledge workers. The success of economies in the future is going to be based on how companies or organizations acquire, use and leverage knowledge effectively, Bircham-Connolly, Corner and Bowden(2005)<sup>3</sup>. In a growing global economy managing knowledge effectively has become a source of competitive advantage. Companies are adopting integrated approaches to identify, manage, share and capitalize on the know-how, experience and intellectual capital of employees. During the past decade, many companies invested heavily in electronic Knowledge Management Systems hoping to increase their ability to manage the vast array of knowledge hidden within the many nooks and crannies of organizational life. However, experienced users of electronic Knowledge Management systems now realize that managing knowledge is a much more complicated process.

Also the dynamism of a new economy requires information professionals to not only quickly create knowledge but also to acquire and apply knowledge through knowledge sharing. As more information and knowledge is created and exchanged, knowledge is increasingly becoming "the" resource, rather than "a" resource for wealth generation, Cheng, Ho and Lau(2009)<sup>4</sup>. In the "resource based" view, knowledge is considered to be the most strategically important resource. The effective management of this resource is consequently one of the most important challenges facing today's organisations. Therefore, organisations can start to effectively manage this resource when they understand the concept of knowledge. Hence, due to the lack of theories on this subject and the intangible nature of knowledge more research needs to be done on this important resource.

It is an open secret that today's business organizations greatly depend upon maximizing resources, eliminating redundancy and automating process to meet the business goals. Further it is also clear that Knowledge Sharing has become an essential part of Knowledge Management.

The effective use of knowledge is a key ingredient in all successful organizations, no matter what business they are doing, what services they may provide. Using knowledge correctly in an organization requires an understanding that the mere availability of simple, disconnected bits of information is not knowledge and cannot adequately address these enterprise imperatives. While Knowledge Management must focus on supporting the sharing of knowledge between individuals, this cannot be done in isolation. Instead Knowledge Management projects must recognize the importance of providing effective platforms for this dissemination of knowledge.

An important process of Knowledge Management in organizational setting is the transfer of knowledge to locations where it is needed and can be used. An important aspect of transfer is that of Knowledge Sharing. Knowledge Sharing involved organizational members willingly contributing their knowledge to organizational memory, according to Kayworth and Leidner (2004)<sup>5</sup>.

A number of organisations have adapted and applied formal knowledge management over the past decade as practitioners and academics have identified effective knowledge management as a crucial factor for success in higher education, Aulawi et al. 2009. Within the overall knowledge management domain, a critical area that needs more attention is Knowledge Sharing. Effective knowledge management strategies must emphasise the role of Knowledge Sharing to achieve maximum results for academic institutions. Knowledge Sharing is considered as the most important process in knowledge management and it seems necessary for academic institutions to do more research on it. As faculty members play an important role in higher education (doing research, publishing, teaching, providing consultation and conducting other professional activities) identifying factors influencing their Knowledge Sharing behaviour was considered in this study.

### DEFINITION OF KNOWLEDGE SHARING

Knowledge Sharing is defined as the extent to which knowledge is being shared, Shapira, Youtie, Yogeessvaran and Jaafar(2005)<sup>6</sup>. Knowledge Sharing refers to the "process of capturing knowledge or moving knowledge from a source unit to a recipient unit"( Bircham - Connolly, Corner and Bowden, 2005)<sup>7</sup>. Knowledge

Sharing is "a process whereby a resource is given by one part and received by another and for sharing to occur, there must be exchange" (Sharratt and Usoro, 2003)<sup>8</sup>. Knowledge Sharing refers to the exchange of knowledge between at least two parties in a reciprocal process allowing reshape and sense-making of the knowledge in the new context (Willem, 2003)<sup>9</sup>.

#### TYPES OF KNOWLEDGE

According to the literature on the studies of knowledge, knowledge can be classified as explicit or tacit. Polyani(2000)<sup>10</sup> defines **Explicit Knowledge** as knowledge that is formal, systematic, and can be codified into records such as databases and libraries. Choi and Lee define explicit knowledge as knowledge that can be documented, created, written down, transferred verbally or through some medium of communication such as emails, telephone or information systems. Another definition by Barth summarizes explicit knowledge as knowledge that can be processed by information systems, codified or recorded, archived and protected by organizations.

**Tacit Knowledge**, on the other hand, is informal knowledge that is embedded in mental processes, is obtained through experience and work practices, and can be transferred by observing and applying it, Choi and Lee(2003)<sup>11</sup>. Barth (2002) defines tacit knowledge as knowledge that exists in people's mind and is quite difficult to transfer. Polyani defines tacit knowledge as knowledge that is highly personal and is embedded in a person's daily work practice (cited by Nonaka, 1994).

#### FACTORS INFLUENCING KNOWLEDGE SHARING

There are many factors that influence Knowledge Sharing. These factors can be divided into positive and negative factors. The negative factors are also referred to as 'barriers' in past research on Knowledge Sharing. A study done in Singapore found that Knowledge Sharing is influenced by cultural factors, motivation to share knowledge, management support, trust, teamwork spirit, and the degree to which knowledge is considered as a source of power, Neo (2002)<sup>12</sup>. The success of Knowledge Sharing may also be influenced by the need to have a reward mechanism, good leadership, trust, and corporate culture that promotes Knowledge Sharing, Lee (2004)<sup>13</sup>. Kristina (2006) on her research on Knowledge Sharing among Multinational Corporations also found that perceived interpersonal trust and shared cognitive ground are important determinants of cross border Knowledge Sharing. Nesan (2005) on the other hand found that Knowledge Sharing behaviours are strongly influenced by work practices that are borne by the respective organizational behaviours.

Sharratt and Usoro<sup>14</sup> found that Knowledge Sharing is influenced by the organizational structure (centralized and decentralized), technical infrastructure, trust, motivation and sense of community. Flexible organizations usually are better prepared to implement Knowledge Sharing strategies as compared to more bureaucratic organizational structures. Willem (2003) in her doctorate dissertation found that Knowledge Sharing is highly influenced by trust, opportunistic behaviour and politicking. Some employees also see Knowledge Sharing as a threat to future career advancement. This view, which is known as 'kiasu mentality', was found to be inherent in a study done by Chua (2002) in Singapore<sup>15</sup>.

#### IMPORTANCE OF KNOWLEDGE SHARING

Knowledge sharing is a means to an end. As such, it describes the process by which individuals and groups communicate their knowledge unconsciously or deliberately to their mutual benefit. The benefit could be the general enhancement of culture or community wellbeing, or it could be wealth creation on the part of the provider and the solution of problems for the recipient. We should never view knowledge sharing, or its more impersonalised counterpart, knowledge dissemination, as an end in itself: it is always a process geared to the benefit of one party or both. **Knowledge sharing is the primary, most basic knowledge practice - without a sharing ethos, much of KM promise fails.** Knowledge Management (KM) is getting the right information to the right people at the right time, and helping people create knowledge and share and act upon information in ways that will measurably improve the potential and performance of the individual.

## 2. LITERATURE REVIEW

A review of the literature revealed that there is no well-defined knowledge sharing theories. Most of the views on Knowledge Sharing are embedded in knowledge management theories, Sharratt and Usoro<sup>15</sup>. Apart from the lack of solid theories, there is also a dearth of empirical evidence, (Willem 2003)<sup>9</sup> about the relationship between knowledge sharing, knowledge management and knowledge economy.

In the last few years there has been substantial research conducted in the area of 'Knowledge Management'. What is knowledge management? How is 'Knowledge Sharing' connected to Knowledge Management? How is Knowledge Management and Knowledge Sharing connected to the overall subject or discipline of knowledge-based economy? Research conducted by the Economic Planning Unit Malaysia and the Georgia Institute of Technology (United States), derived a conceptual framework relating to the concept of knowledge management, knowledge sharing, and knowledge based economy, Shapira, P, Youtie, J, Yogevaran, K and Jaafar, Z. (2005)<sup>6</sup>. According to this research, knowledge can be viewed as input stock variables that are further decomposed into:

- Knowledge enablers** – which refers to inputs such as human capabilities (quality of human resources), leadership (top level management commitment), info-structure (technological infrastructure), and environment (policies related to knowledge management). These knowledge enablers are vital inputs for the development of a knowledge-based economy.
- Knowledge processing** – this refers to the management aspect of knowledge. In any organization, knowledge processing refers to the part where knowledge is generated, acquired, shared and utilized. This part is seen as the most vital aspect of knowledge management since this is where the actual knowledge is made and put to use.
- Knowledge outcome** – this part refers to the end result of any knowledge management efforts in an organization. Ultimately a knowledge-based organization must meet certain knowledge outcomes that are measurable, such as performance improvement (higher profits, productivity, sales etc), development of new innovation, and improvement of existing process.

Research concerning the factors affecting knowledge sharing has identified a number of different variables, from "hard" issues such as technologies and tools, Van den Hoof and De Ridder (2005)<sup>16</sup> to "soft" issues such as motivation Gao (2004)<sup>17</sup> and trust<sup>18</sup>. This review presents the empirical literature that studied factors influencing knowledge sharing behaviour in organisations and academic institutions in general, and the literature which focused on attitude, intention and intrinsic motivation in particular.

Osterloh and Frey<sup>19</sup> asserted that effective knowledge creation and transfer is closely related to motivation management. They analyzed various organisational and motivational devices with respect to their suitability to generate and transfer knowledge. In doing so, they noted that certain organisational forms have the capacity to crowd out intrinsic motivation and therefore are detrimental to the effective transfer of knowledge.

Lin and Lee investigated the applicability of the Theory of Planned Behaviour in explaining senior managers' intentions to encourage knowledge sharing. The analytical results demonstrated that the main determinants of actual company knowledge sharing behaviour were the encouraging intentions of senior managers. Additionally, senior managers' attitudes (correlation value=0.43), subjective norms (0.45) and perceived behavioural control (0.22) were found to positively influence intentions to encourage knowledge sharing.

Bock, Kim and Lee (2005)<sup>20</sup> examined factors that are believed to influence individuals' knowledge-sharing intentions. They employed the Theory of Reasoned Action and augment it with extrinsic motivators, social-psychological forces and organisational climate factor that are believed to influence individuals' knowledge sharing intentions. The researchers also found that the attitude towards knowledge sharing (correlation value= 0.232) and subjective norms (0.266) influence individual's intention to engage in knowledge sharing behaviour, along with organisational climate (0.142)

Wasko and Faraj(2003)<sup>21</sup> examined why individuals in electronic networks of practice contribute knowledge to others, primarily strangers, when the contributor does not have any immediate benefits and free-riders are able to acquire the same knowledge as everyone else. The results of their study indicated that individuals contribute their knowledge when they believe that participation enhances the professional reputation, when they have necessary expertise to share and when they become part of the structural network. An interesting finding of this study was that individuals contribute regardless of expectations of reciprocity or high levels of commitment to the network.

By integrating a motivational perspective into the Theory of Reasoned Action, Lin examined the role of both extrinsic (expected organisational rewards and reciprocal benefits) and intrinsic (knowledge self-efficacy and enjoyment in helping others) motivators in explaining employee knowledge sharing intentions. The

results showed that motivational factors such as reciprocal benefits (correlation value= 0.35), knowledge self efficacy (0.27), and enjoyment in helping others (0.21) were significantly associated with employee knowledge sharing attitudes. Also the result confirmed that reciprocal benefits (correlation value= 0.25), knowledge self-efficacy (0.42), and enjoyment in helping others (0.24) positively influence employee knowledge sharing intentions. However, expected organisational rewards did not significantly influence employee attitudes and behaviour intentions regarding Knowledge Sharing.

Research on knowledge sharing in higher education institutions has been considered by some researchers. Lou, Yang and Shih studied the behaviour of instructors from information management departments with regard to knowledge sharing at technological universities. The influence of self-motivation and incentive mechanism on instructors' individual knowledge sharing and the obstacles encountered while Knowledge Sharing were investigated in this study. The results showed that information management instructors may encounter some barriers when sharing knowledge with others; they showed negative consensus on issues such as individual job security, academic promotion and intellectual property rights, making colleagues unwilling to share knowledge; the relationship among colleagues is very distant; and department heads do not take Knowledge Sharing seriously.

Among the positive consensus items are: instructors agreed that the research workload is too heavy to share knowledge with others; and the university's information software that facilitate knowledge sharing is too old to use. In addition, the four aspects of knowledge sharing between instructors such as (a) the behaviour of instructors' Knowledge Sharing in teaching, research, educational and student counselling; (b) the motives of instructors' knowledge sharing; (c) the incentives of instructors' Knowledge Sharing; and (d) the situations of instructors' knowledge sharing were correlated with their demographic moderators which include gender, seniority of teaching, marital status, educational background, type of institute, institute location, administrative duties and age. Also, the motives and behaviour of Knowledge Sharing are found to be significantly positively correlated, so that the higher the motives of Knowledge Sharing, the more that the behaviour of knowledge sharing occurs.

Kim and Ju identified and analyzed major factors (perception, trust, openness in communication, collaboration, reward systems and communication channel) for knowledge-sharing among faculty members in a higher educational institution in order to examine how those factors influence campus wide knowledge-sharing. The study also investigated the way in which those factors are interrelated. Results showed that perception is the most influential factor and reward systems are the second-most influential factor for faculty Knowledge Sharing. Respondents did not consider other factors such as trust, openness in communication, collaboration, and communication channels based on IT infrastructure to be main factors. These factors did not show statistically significant effect on faculty Knowledge Sharing.

#### **BARRIERS THAT INHIBIT KNOWLEDGE SHARING (KS)**

There are several literature which discuss whether Knowledge Management in general and also knowledge sharing practices should be people driven or technology driven. The management disciplines supports the view that knowledge sharing can be successful only if it is people driven and the practices followed in an organization. However, technology also plays an important role without which most knowledge sharing practices would be less effective and applications less timely.

It has been widely acknowledged and agreed that the main challenge of companies sharing practices is to protect and maximize the value derived from the tacit knowledge held by the employees, customers and external stakeholders. The effectiveness of the knowledge driven work is directly related to the creation of new knowledge and the sharing of useful existing knowledge through the interaction between tacit and explicit knowledge (Nonaka & Takeuchi, 1995)<sup>22</sup>; (Spender 1996)<sup>23</sup>; (Sveiby 1997)<sup>24</sup>.

Barriers that inhibit Knowledge Sharing can be divided into barriers at the firm (or organizational level) and at the individual level. One of the main barriers that have been outlined repeatedly in the literature on Knowledge Management is culture. Knowledge Sharing fails in organizations because firms tend to change their organization's culture to fit Knowledge Sharing strategies and practices, Riege(2005)<sup>25</sup>. Organizations should come up with Knowledge Sharing strategies that fit the existing organization's culture. Knowledge Sharing is also viewed separately as a different activity and not part of the organization's objectives, McDermott, R and O'Dell (2001)<sup>26</sup>. At the individual level, Riege noted that barriers to Knowledge Sharing include lack of communication skills and social networks, differences in culture, lack of time and lack of trust. At the firm level, Riege identifies the following Knowledge Sharing barriers:

- Firms are reluctant to promote Knowledge Sharing due to lack of economic viability
- Firms, especially smaller organizations, do not have adequate infrastructure or resources
- The physical environment is not conducive to engage and promote Knowledge Sharing activities
- Existing IT systems are not good enough and sometimes there exists mismatches between the organizational needs and what is provided.

Pauline and Mason in an empirical research on barriers of Knowledge Management in New Zealand found that barriers are mainly internal to the organization. Organizational culture, leadership and management practices and lack of awareness and vision about Knowledge Management were the main barriers inhibiting Knowledge Management implementation.

Colomar and Sarnoff in a case study at Burson Marsteller, a professional services firm, found the "knowledge is power" mentality among the staff a major hurdle hindering effective KS. Staff was found to resist sharing insights and ideas due to lack of time and fear of losing value within the organization.

#### **KS STRATEGIES**

A review of the literature on KS strategies found the following commonly used strategies:

- Communities of Practice** – this refers to 'groups of people who do some sort of work together (online or in person) to help each other by sharing tips, ideas and best practices, Faul & Kemly<sup>27</sup>
- Knowledge Networks** – this refers to 'a more formal and structured team-based collaboration that focuses on domains of knowledge that are critical to the organization.
- Retrospect** – this refers to 'an in-depth discussion that happens after completion of an event, project or an activity, to basically capture lessons learnt during the entire activity, Faul, M and Kemly(2004)<sup>28</sup>. At the end of the session, a documented review of the project process is created. The main idea behind this meeting is to share feedback with decision-makers, improve support from the team, and ultimately enhance team building.
- Storytelling** – this refers to a storytelling session whereby the person who attends an event or training session is given the opportunity to disseminate the information/knowledge gained to others within the organization

Other strategies used are built-in HR practices that encourage Knowledge Sharing within the organization such as:

- Rotation policies among staff
- Training and learning opportunities
- Mentoring
- Having policies that recognize and reward individuals as well as teams that share knowledge within the organization
- Integrating the web site with Knowledge sharing systems and emails that employees always use
- Having a computerized information system to store and retrieve knowledge/information.

From the above review of the literature on Knowledge sharing, the following objectives are considered for the present study.

### **3. OBJECTIVES**

Knowledge is seen as an important input in most organizations since it allows the development and creation of competitive advantage. This research has focussed on the knowledge processing aspect with greater emphasis on knowledge sharing in educational institute, which is the key element in the implementation of knowledge management. This research hopes to provide useful insights into how knowledge is being shared in Colleges in Mysore city. Specifically, this research was carried out with the following objectives:

- To know the general attitude towards knowledge sharing among knowledge workers in educational institutions in Mysore City.
- To identify the barriers in knowledge sharing.
- To seek the views of the academicians on the strategies to encourage knowledge sharing.

#### 4. METHODOLOGY

A questionnaire survey method was used to seek response from the academicians from 5 MBA and engineering colleges. The instrument was designed to understand the general attitude, the motivation to share, barriers that inhibit sharing and also the strategies to improve sharing knowledge. Five point Likert scale anchored to one (strongly disagree) and five (strongly agree) were employed. The General attitude towards knowledge sharing was measured with 7 items, the motivation to share was measured with 3 items, barriers that inhibit sharing was measured with 7 items and the strategies to improve sharing knowledge was measured with 11 items. All these items were adapted from sources outlined in the review of literature. Table 2 summarizes the mean scores and standard deviation of each of these items.

##### DATA AND SAMPLE

The questionnaire was administered to the academicians in the B-Schools and Engineering colleges in the Mysore city. From each college a sample of 5-10 academic staff was received for this research. The sample of the study comprised 8 colleges in Mysore city. A total of 100 self-administered questionnaires were distributed to all academicians in the respective institution. 70 participants successfully responded, giving a response rate of 70%.

##### SAMPLING METHOD

The study uses convenience sampling. Convenience sampling is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher.

##### QUESTIONNAIRE DESIGN

The questionnaire was divided into two sections namely section A and B. Section A comprised questions eliciting demographic characteristics. Section B comprised 36 questions designed to ascertain the views of the academic staff on the significance of knowledge sharing, motivation to share, strategies to encourage knowledge sharing, and barriers in knowledge sharing.

##### DATA ANALYSIS METHOD

The data was subjected to factor analytic method. Cronbachs' alpha was calculated to test the reliability of the measurements before subjecting the factor scores obtained from the factor analysis. Given the methodology the following chapter discusses the analysis and interpretation thereon.

#### 5. RESULTS AND DISCUSSION

TABLE 1: RESPONDENTS' DEMOGRAPHIC PROFILE

Respondents' profile	Classification	Frequency	Percentage
Gender	Male	26	37.14
	Female	44	62.86
Age	< 30	44	62.8
	31-40	12	17.14
	41-50	09	12.86
	>50	04	5.7
Designation	Lecturer	48	68.57
	Senior lecturer	1	1.43
	Asst Professor	13	18.57
	Professor	6	8.57
	Other	2	2.85
Status	Married	46	65.71
	Unmarried	24	34.28

##### Preliminary Analysis

##### DESCRIPTIVE ANALYSIS

The details of mean, standard deviation, Skewness and Kurtosis for each measurement item are shown in the table below. Observation of the Kurtosis and Skewness reveals that all the variable items in Kurtosis and Skewness are less than 10 and 3 points respectively, and thus the data confirms normality assumptions.

Factor analysis was conducted for t variables using principal component method and Verimax rotation for rotation of the axis. KMO statistic of above 0.50 was taken as the criteria for measurement of sampling adequacy and Bartlett's test of Sphericity for establishing the significance of the factor analytic procedure. The results of the tests and interpretation are discussed under respective factor analysis.

TABLE 2: DESCRIPTIVE STATISTICS

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
General Attitude1	70	4.6714	.47309	-.746	.287	-1.487	.566
General Attitude2	70	4.2143	.75934	-.793	.287	.471	.566
General Attitude3	70	3.9857	.78929	-.339	.287	-.434	.566
General Attitude4	70	4.0143	.77071	-.416	.287	-.192	.566
General Attitude5	70	4.8000	.40289	-1.533	.287	.360	.566
General Attitude6	70	3.7429	.97335	-1.009	.287	.733	.566
General Attitude7	70	2.5000	1.01795	.636	.287	-.376	.566
General Attitude8	70	3.4571	1.20007	-.647	.287	-.548	.566
Motivational factor1 of KS	70	4.5857	.62538	-1.249	.287	.504	.566
Motivational factor2 of KS	70	2.7714	.95054	.375	.287	-.230	.566
Motivational factor3 of KS	70	3.6571	1.00557	-1.283	.287	1.565	.566
Barrier1	70	3.8143	.66579	-1.290	.287	2.307	.566
Barrier 2	70	3.3429	.89904	-.620	.287	-.108	.566
Barrier 3	70	3.3571	.91740	-.085	.287	-.909	.566
Barrier 4	70	3.1000	1.15658	-.084	.287	-.847	.566
Barrier 5	70	3.6000	1.06866	-.452	.287	-.790	.566
Barrier 6	70	3.2000	.97207	-.222	.287	-1.166	.566
Barrier 7	70	3.1000	1.13124	.169	.287	-1.000	.566
Strategy1	70	4.1571	.65132	-.490	.287	.759	.566
Strategy 2	70	4.2000	.75373	-1.187	.287	2.143	.566
Strategy 3	70	4.0286	1.07638	-1.637	.287	2.509	.566
Strategy 4	70	4.0143	.95542	-1.877	.287	4.097	.566
Strategy 5	70	4.0286	.72174	-.995	.287	1.916	.566
Strategy 6	70	3.8429	.81000	-.713	.287	1.283	.566
Strategy 7	70	4.0429	.62405	-.028	.287	-.343	.566
Strategy 8	70	3.3571	.86871	-.091	.287	-.090	.566
Strategy 9	70	3.5000	.95932	-.355	.287	-.907	.566
Strategy 10	70	3.2714	.88336	-.178	.287	-1.064	.566
Strategy 11	70	3.3857	1.02565	.152	.287	-1.082	.566
Valid N (listwise)	70						

**FACTOR ANALYSIS****FACTOR ANALYSIS FOR GENERAL ATTITUDE**

Factor analysis is conducted on the items of variable i.e., general attitude the KMO is found to be 0.635, which is above the required value of 0.5, hence this sample is adequate for further factor analysis. The total variance explained is 62.19% and the component matrix shows one factor. The factor which is called as General attitude (GA 1, 2, 4, 5) has reliability with Cronbach's alpha of 0.779 was extracted and the results are as shown in the tables below.

TABLE 3: KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.635
Bartlett's Test of Sphericity	Approx. Chi-Square	107.831
	Df	15
	Sig.	.000

TABLE 4: TOTAL VARIANCE EXPLAINED

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.547	42.457	42.457	2.547	42.457	42.457
2	1.184	19.740	62.197	1.184	19.740	62.197
3	.857	14.283	76.480			
4	.722	12.032	88.512			
5	.462	7.700	96.212			
6	.227	3.788	100.000			

TABLE 5: ROTATED COMPONENT MATRIX<sup>A</sup>

	Component	
	1	2
GA1	.711	
GA2	.817	
GA3	.723	
GA4	.842	
GA7		.754
GA8		.818
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

TABLE 6: ITEM-TOTAL STATISTICS OF GENERAL ATTITUDE

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha
GA1	12.2143	3.736	.490	.779
GA2	12.6714	2.775	.595	
GA3	12.9000	2.758	.563	
GA4	12.8714	2.461	.745	

**FACTOR ANALYSIS FOR BARRIERS**

Factor analysis is conducted on the items of variable Barriers to knowledge sharing and the KMO is found to be 0.751, which is above the required value of 0.5, hence this sample is adequate for further factor analysis. The total variance explained is 57.69% and the rotated component matrix shows two factors. One factor which can be called as Barriers-A (BA 2, 3), The other factor which can be called as 'Barriers-B (BA 4, 5, 6, 7, 10, 11, 12, 13) and has reliability with Cronbach's alpha of 0.853 were extracted and the results are as shown below

TABLE 7: KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.751
Bartlett's Test of Sphericity	Approx. Chi-Square	294.431
	Df	45
	Sig.	.000

TABLE 8: TOTAL VARIANCE EXPLAINED

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.233	42.334	42.334	4.233	42.334	42.334
2	1.536	15.364	57.698	1.536	15.364	57.698
3	1.178	11.775	69.473			
4	.801	8.005	77.478			
5	.616	6.164	83.642			
6	.498	4.975	88.617			
7	.383	3.826	92.443			
8	.321	3.207	95.650			
9	.251	2.507	98.157			
10	.184	1.843	100.000			

TABLE 9: ROTATED COMPONENT MATRIX<sup>A</sup>

	Component	
	1	2
BA2		
BA3		
BA4	.623	
BA5	.703	
BA6	.586	
BA9	.750	
BA10	.715	
BA11	.812	
BA12	.791	
BA13	.578	
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		

A. Rotation converged in 3 iterations.

TABLE 10: TOTAL STATISTICS

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha
BA4	21.5429	27.788	.552	.853
BA5	21.0429	27.897	.604	
BA6	21.4429	30.192	.442	
BA9	21.6143	27.226	.654	
BA10	21.6857	27.175	.581	
BA11	21.7429	26.397	.737	
BA12	21.6571	28.055	.709	
BA13	21.7714	29.512	.488	

**FACTOR ANALYSIS FOR STRATEGIES TO ENCOURAGE KNOWLEDGE SHARING**

Factor analysis is conducted on the items of strategies to encourage knowledge sharing and the KMO is found to be 0.623, which is above the required value of 0.5, hence this sample is adequate for further factor analysis. The total variance explained is 60.49% and the rotated component matrix shows two factors. One factor which can be called as 'Strategies-A' (BA 1 2, 4, 5, 6) has reliability with Cronbach's alpha of 0.738 and the other factor which can be called as 'Strategies-B' (BA 9, 10, 11) has reliability with Cronbach's alpha of 0.821 were extracted and the results are as shown in the tables below.

**TABLE 11: KMO AND BARTLETT'S TEST**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.623
Bartlett's Test of Sphericity	Approx. Chi-Square
	Df
	Sig.

**TABLE 12: TOTAL VARIANCE EXPLAINED**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.571	32.132	32.132	2.571	32.132	32.132
2	2.269	28.362	60.495	2.269	28.362	60.495
3	1.255	15.692	76.187			
4	.740	9.251	85.437			
5	.441	5.508	90.946			
6	.305	3.808	94.754			
7	.240	3.006	97.760			
8	.179	2.240	100.000			

**TABLE 13: ROTATED COMPONENT MATRIX<sup>a</sup>**

	Component	
	1	2
ST1	.574	
ST2	.792	
ST4	.789	
ST5	.607	
ST6	.710	
ST9		.856
ST10		.761
ST11		.892
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

**TABLE 14: ITEM-TOTAL STATISTICS**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha
ST1	16.0857	5.877	.386	.738
ST2	16.0429	4.940	.600	
ST4	16.2286	4.382	.556	
ST5	16.2143	5.504	.441	
ST6	16.4000	4.939	.535	

**TABLE 15: TOTAL STATISTICS**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha
ST9	6.6571	2.895	.693	.821
ST10	6.8857	3.291	.626	
ST11	6.7714	2.643	.714	

**TABLE 16: SUMMARY OF RELIABILITY ANALYSIS OF THE VARIABLES**

No	Description	No of Items	Cronbach's Alpha
1	Items related to the general attitude towards knowledge sharing	4	0.779
2	Items related to barriers in knowledge sharing	8	0.853
3	Items related to strategies to encourage knowledge sharing	8	0.780

**IMPORTANCE OF KNOWLEDGE SHARING**

One of the objectives of the research was to ascertain the degree to which knowledge sharing was considered important by the respondents. Survey found 80% of respondents stating 'strongly agree' and 20 percent stating 'agree' to the statement. None of the respondents disagreed or strongly disagreed with the statement. The results of the analysis are shown in the below Table.

**TABLE 17: SIGNIFICANCE OF KS FOR THE SUCCESS AND GROWTH OF A BUSINESS SCHOOL**

	Frequency	Percentage
Strongly Agree	56	80
Agree	14	20
Total	70	100

**Is the importance of knowledge sharing clearly communicated?**

Respondents were also asked to respond to whether the importance of knowledge sharing is clearly communicated in their university/college. Around 61 percent said they 'agree' or 'strongly agree' with the statement, as compared to 14 percent who were undecided. A large number of respondents (25 percent)

'disagree' or 'strongly disagree' to the statement that importance of knowledge sharing is not clearly communicated in the college/university. Results are depicted in Table below

**TABLE 18: COMMUNICATION OF IMPORTANCE OF KNOWLEDGE SHARING IN THE COLLEGE/UNIVERSITY**

	Frequency	Percentage
Strongly Agree	12	17.1
Agree	31	44.3
Neutral	10	14.3
Disagree	11	15.7
Strongly Disagree	6	8.6
Total	70	100

Is the importance of knowledge sharing clearly communicated?

## 6. FINDINGS

### GENERAL ATTITUDE TOWARDS KNOWLEDGE SHARING

Respondents were asked to indicate the degree to which they were willing to share the knowledge and also the degree to which their colleagues were willing to share the knowledge. In Table below, the first two statements relate to knowledge donating and the last two statements relate to knowledge receiving. It can be observed that the self-serving biases are apparent from the views expressed by the respondents. They have given a better rating when it comes to their willingness to share knowledge and a lower rating to when it comes to sharing of knowledge by their colleagues.

**TABLE 19: VIEWS ON KNOWLEDGE RECEIVING AND KNOWLEDGE SHARING**

	SA	A	N	D	SD
I am willing to share information, knowledge with my colleagues	47 (67.1)	17 (32.9)			
I am willing to share my lecture notes, power point slides and other resources with my colleagues	27 (38.6)	33 (47.1)	8 (11.4)	2 (2.9)	
My colleagues share information, knowledge with me	19 (27.1)	33 (47.1)	16 (22.9)	2 (2.9)	
My colleagues share their lecture notes, power point slides and other resources with me	19 (27.1)	35 (50)	14 (20)	2 (2.9)	

### BARRIERS TO KNOWLEDGE SHARING

Table below shows respondents' views on the barriers to knowledge sharing. On a Likert's five point scale a value of 5 was assigned to 'strongly agree'; as such, a mean score represents high intensity of that variable in terms of barriers. The barriers have been arranged in ascending order of the mean value. It can be seen that strongest barriers are identified as Lack of interaction between those who need knowledge and those who can provide knowledge, no proper system to identify the colleagues to share my knowledge, support by the management, and status fear among the staff.

**TABLE 20 : MEAN SCORE OF BARRIERS TO SHARE KNOWLEDGE**

Barriers	Scores
There is lack of interaction between those who need knowledge and those who can provide knowledge	3.6
There is no system to identify the colleagues with whom I need to share my knowledge	3.2
Existing university/college culture does not provide sufficient support for sharing knowledge	3.1
Staff is reluctant to seek knowledge from their seniors because of the status fear	3.028
It is difficult to convince colleagues on the value and the benefits of the knowledge that I may possess	2.985
There is a general lack of trust among staff in my university/college	2.95
Staff in my university/college do not share knowledge because of the fear of it being misused by taking unjust credit for it	2.9
Knowledge sharing does not happen because of fear of negative consequences to self-image, status, or career	2.87

### STRATEGIES FOR PROMOTING KNOWLEDGE SHARING

Respondents' views were sought on the ways to promote knowledge sharing. Their responses, arranged in descending order, are given in Table below. A very strong case was observed for promoting knowledge sharing through regular emphasis by the top management of the university. This means that people would be more willing to share their knowledge if they felt that the top management wants it. It can also be observed from this table that there is a strong case for linking knowledge sharing with rewards and performance appraisal. We also find that respondents feel that there is a lack of knowledge sharing strategies, a lack of knowledge repositories, and also a lack of awareness on the benefit of knowledge sharing in their organizations.

**TABLE 21: STRATEGIES TO ENCOURAGE KNOWLEDGE SHARING**

	Mean Scores	% of 'SA' and 'A'
Promotion of Knowledge sharing		
Knowledge sharing can become a culture in the organization if top management regularly displays and reinforces the theme that 'knowledge is the lifeblood of an organization'.	4.2	91.3
Technology plays a significant role in promoting Knowledge sharing	4.157	88.5
Knowledge sharing can be encouraged if it is linked with the performance appraisal of the staff.	4.028	87.4
The university/college should use its newsletter or other similar tools to disseminate knowledge and encourage knowledge sharing among the Staff	4.014	89.8
Knowledge sharing can be encouraged if it is clearly linked with rewards.	3.84	71.5
There is growing awareness on the benefit of knowledge sharing in my organization.	3.50	60.0
There exists a knowledge sharing strategy in my organization.	3.38	44.2
There exists knowledge repositories (database) in my organization.	3.27	47.2

## SUMMARY OF FINDINGS

- All the respondents agree that Knowledge sharing is important and is significant for the success and growth of the organisation.
- It can be seen that 61.4% of respondents strongly agree/agree that Importance of knowledge sharing is clearly communicated in the college/university, whereas 39.6% of respondents are neutral/disagree to this statement.
- It can be observed that the self-serving biases are apparent from the views expressed by the respondents. They have given a better rating when it comes to their willingness to share knowledge and a lower rating to when it comes to sharing of knowledge by their colleagues.
- It can be seen that strongest barriers identified are:

- i. Lack of interaction between those who need knowledge and those who can provide knowledge,
- ii. no proper system to identify the colleagues to share my knowledge
- iii. support by the management and
- iv. status fear among the staff
- It is observed that 91.3% of respondents have strongly agreed/agreed that Knowledge sharing can become a culture in the organization if top management regularly displays and reinforces the theme that 'knowledge is the lifeblood of an organization', 87.4% of employees strongly agreed/agreed that Knowledge sharing can be encouraged if it is linked with the performance appraisal of the staff.
- Though 88.5 have agreed that Technology plays a significant role in promoting Knowledge sharing, only 44.23% of employees agreed that there exists a knowledge sharing strategy in their organization and 47.2% respondents agreed that there exists knowledge repositories (database) in their organization

## 7. CONCLUSION

Institutions of higher learning are placed in the critical role of knowledge production. The knowledge so produced by individuals should be translated into organizational knowledge. This requires knowledge sharing. It is very significant, as most academicians have agreed, in order to remain highly effective. Based on this research, knowledge sharing should be continuously promoted and barriers should be overcome. The strategies for promoting knowledge sharing may be organisation-specific. However, a strong support was found for linking knowledge sharing with rewards and performance appraisal. Support from the top management in encouraging academicians. More efforts must be made and awareness must be created to ensure that people understand the benefits of knowledge sharing.

Basically, teaching staff could enhance their knowledge sharing practices if their infrastructure is upgraded. There is a need to change their system from mechanistic to organic approach. Databases must be upgraded to encompass more relevant and variety of business database. Sharing of knowledge could also be enhanced if the administrators play a positive role by encouraging their teaching staff to share knowledge by organizing open discussions, forums, seminars and colloquiums.

## 8. LIMITATIONS OF THE STUDY

- This study is limited to the influence of three factors (attitude, barriers and strategies) on knowledge sharing behaviour.
- Knowledge workers had lack of time to interact and share their views.
- The respondents' views seemed to be inconsistent in the same institution.

## 9. SCOPE FOR FURTHER RESEARCH

- Further research may be conducted to determine other factors such as trust, communication, individual factors (intention and intrinsic motivation) and collaboration on knowledge sharing behaviour of the academicians.
- Future studies may be done with a broader sample.
- Further research can be conducted taking demographic data into demographic data into consideration

## 10. REFERENCES

1. Alvesson, M., 2001 "Knowledge work: ambiguity, image and identity" Human Relations, 54:7,863-886.
2. Nelson R and Winter, S.G. (1982). An evolutionary theory of economic change, Cambridge, Mass: Harvard University Press.
3. Bircham-Connolly, Corner and Bowden, Knowledge Sharing Among Academic Staff: A Case Study of Business Schools in Klang Valley, Malaysia, 2005
4. Cheng, Ho and Lau, Knowledge sharing behaviour influences: a case of Library and Information Science faculties in Iran, Malaysian Journal of Library & Information Science, Vol. 16, no. 1, April 2011: 1-14, 2009
5. Kayworth and Leidner, Knowledge Sharing Culture in Malaysian Public Institution of Higher Education: An Overview, Proceedings of the Postgraduate Annual Research Semina, 2004
6. Shapira, P, Youtie, J, Yogeessvaran, K and Jaafar, Z., 'Knowledge Economy Measurement: Methods, Results and Insights from the Malaysian Knowledge Content Study', Proceedings of the Triple Helix 5 Conference on New Indicators for the Knowledge Economy, Turin, Italy 2005
7. Bircham-Connolly, H, Corner, J and Bowden, S, 'An Empirical Study of the Impact of Question Structure on Recipient Attitude During Knowledge Sharing', Electronic Journal of Knowledge Management, Vol 32, Issue 1, pp 1-10, 2005
8. Sharrat, M. and Usoro, A. (2003), 'Understanding Knowledge-Sharing in Online Communities of Practice', Electronic Journal on Knowledge Management, Vol 1, Issue 2, pp.187-196., 2003
9. Willem, A. (2003), 'The Role of Organization Specific Integration Mechanisms in Inter-Unit Knowledge Sharing', PhD Dissertation at Vlerick Leuven Gent Management School, Ghent University, Belgium, available online at [http://72.14.203.104/search?q=cache:AwAf\\_ok1x7UJ:www.ofenhandwerk.com/oklc/pdf2003](http://72.14.203.104/search?q=cache:AwAf_ok1x7UJ:www.ofenhandwerk.com/oklc/pdf2003)
10. Polyani, The Knowledge in Knowledge Management, 2000 edition (book)
11. Choi and Lee, "An empirical investigation of KM styles and their effect on corporate performance", Information and Management", Vol.40, Issue 5, pp.403-417. 2003
12. Neo, 2002 cited in Chaudhry, 2005, p 3
13. Lee, Y.L, 'A study of influencing factors of KS intention of employees in IT organizations -A case study of WALTON, Unpublished Masters dissertation, National Sun Yat Sen University, Taiwan, . (2004)
14. Sharrat and Usoro, Understanding Knowledge-Sharing in Online Communities of Practice
15. cited in Chaudhry, 2005, p 3
16. Van den Hoof and De Ridder; Kim and Lee 2005;
17. Gao 2004; Aulawi et al. 2009; Choi, Kang and Lee 2008
18. Ardichvili, Page and Wentling 2003; Hinds and Pfeiffer 2003; Cheng, Ho and Lau 2009; Taylor and Murthy 2009
19. Osterloh and Frey, Motivation, Knowledge Transfer, and Organizational Forms
20. G.-W. Bock, R.W. Zmud, Y.-G. Kim, J.-N. Lee, Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate (2005)
21. Wasko & Faraj, 2005, "Why Should I Share INFS 834 Article Review
22. Nonaka & Takeuchi, 1995; The Knowledge-creating company; Oxford university Press; Oxford.
23. Spender J C 1996, "Making Knowledge – the basis of the dynamic theory of the firm"; Strategic Management Journal, Vol 17; Special Winter issue. PP 45-62.
24. Sveiby K E (1997), The New Organizational Wealth, Barlett – Koehler Publisher, San Francisco, CA.
25. Riege, Three-dozen knowledge-sharing barriers managers must consider, 2005
26. McDermott, R and O'Dell, C., 'Overcoming culture barriers to sharing knowledge', Journal of Knowledge Management, Vol.5, No.1, pp.76-85, 2001
27. Faul & Kemly, Knowledge sharing in UNFPA, 2003
28. Faul, M and Kemly, 'Knowledge Sharing Toolkit' : An evolving collection of practical knowledge sharing techniques, available at <http://www.bellanet.org>, 2004.

**MARKOV CHAINS USED TO DETERMINE THE MODEL OF STOCK VALUE AND COMPARED WITH P/E MODEL**

**ROYA DARABI**  
**ASST. PROFESSOR**  
**DEPARTMENT OF ACCOUNTING**  
**SOUTH TEHRAN BRANCH**  
**ISLAMIC AZAD UNIVERSITY**  
**TEHRAN**

**ZEINAB JAVADIYAN KOTENAIE**  
**STUDENT**  
**DEPARTMENT OF ACCOUNTING**  
**SOUTH TEHRAN BRANCH**  
**ISLAMIC AZAD UNIVERSITY**  
**TEHRAN**


**ABSTRACT**

Aim of this study a comparison between the two models for the valuation of stocks in Tehran Stock Exchange. These two names P.E and a Markov chain are. Researchers in their study were to calculate the valuation of shares in the P.E and then calculate the value of the enamel Markov chain to achieve a comparative mode. But it should be noted that the most important thing is that the Markov chain is used in Iran or not? A resource is used because in this context does not exist, and if Iran does not share the pain Why Professors and experts have agreed with this issue? Markov chain model of computation can be optimized with favorable results achieved in Iran.

**KEYWORDS**

Value Index, Pricing Stocks, P/E equation, Markov Ripple.

**INTRODUCTION**

hare is a stock that in duds sheer holders rights in order to participate in manage meant and com companies benefits and reception some part of its value if it dissolved. So hares is aloof that defines ownership on relative share of assets and companies profits. Indeed shares are stocks without maturity and there is unreliability from future benefit and expected selling price values concept isn't as simple as some image. The values of each asset depend on various factors such as, person that change in indifferent times. The word value includes general concept. That due to the interest of share holders and other stakeholders according to their benefits interpreted in different ways. Companies with high value creation can grow faster, access to capital markets easier, provide better conditions for their employees and have more abilities to manage their resources. Evaluations tools use for evaluate events like merger and acquisition or analysis of companies, Selling part or change in capital structure of the company.

These events can in effluence on companies shares value by changing in its cash flow. There are different models to calculating in its cash flow. There are different models to calculating shares value such as P/E model that has many applications because of simply. But in this model the dividend growth rate is constant that is main weakness. In mark of chain model the dividend growth rate is considered as a variable.

In fact determining the value of stocks with using markov ripple and comparing it with method P/E in accepted companies in Tehran stock market is the main purpose of author that it can follow his real purpose in research with replying the following question.

Which model between those two models is the best in research?

**RESEARCH PURPOSE**

Stock assessment is a very complex issued and there is no assessment model that is able to correctly predict the intrinsic value of a share. Even there is no model to give an exact fore cast from price changing in future stock assessment models offer a basic for comparison and evaluation criteria and factors related to the shares value. In addition by using some assessment models can calculate the limit of average rate of return when shares are lower than an actual value using of methods and various models for deter minting shares value can help financial system of communities a lot. Because not using of mark of chain completely in Iran and because of learning other methods of stock assessment researcher collected some valuable contents and want this research to grow and it make the topic clear.

**REVIEW OF LITERATURE****P/E MODEL**

P/E is briefed (price) p. to corning per share EPS. As if appears from that's name for calculate P/E the last price of a company's shares is derided to benefit of per shares.

Mostly P/E calculated on dates which the company's disclosure data (often 3 months EPS).

Sometimes this P/E is called protracted P/E which is based on calculating the last EPS, but sometimes for calculating P/E is a use estimating EPS; usually this EPS expresses next year's estimating profit. In this case calculated P/E is called estimated van or P/E guard. Sometimes calculating the P/E has third method which is based on average of 2 past season and estimate 2 remaining season of the year. There is no main difference between these three kinds of methods.

The big problem about calculating P/E is companies that are unprofitable then they negative EPS. Some researcher believes in existing the negative P/E, a group of people believe in P/E on zero in this status. Historically in Tehran Stock market usually the average of P/E in range of 3/2 to 13/2 is experienced. In this range the swing of P/E is mainly depend on economic condition of per time. At present in Tehran exchange Market the average of all accepted companies P/E about 8/2.

**MARKOV'S CHAIN MODEL**

In the Gordon and Shapiro model the share's profit increasing with fix speed. Of course this have more theoretical aspect to practical applies. A newest hypothesis which presented by Hurley and Johnson is speed of growing shares as collection of same separated variant distributed and randomly real price. Consider an efficient stock exchange, a markov that the price of share refluxing all of existing information. Suppose that entrepreneurs have same expectation, if  $t$  be the time which assessment is carrying out,  $k$  time index,  $p$  shares price,  $d$  shares profit  $r$  rate of interest. For haring efficient market shares prices function as equation 1:

Equation (1)

$$P_k \frac{E_k [d_{k+1} + P_{k+1}]}{r}$$

E is amount of eventual predicted.

Samuelson shows that:

Equation (2)

$$P_1 = \sum_{i=1}^{\infty} \frac{E_r [d_t + i]}{r^i}$$

$$\lim_{i \rightarrow \infty} \frac{E + [p_t + i]}{r^i}$$

That we suppose:

Rate of interest may change over time.

In this condition of shares profit follows as equation 3:

Equation (3)

$$d_{k+1} = g_{k+1} d_k$$

$$k = t, t+1, \dots$$

g Growth factor can take one of the quantities condition

$$g^1, g^2 \geq 0$$

At the markov fix chain y dynamic breaking out in 2 status which  $\pi_{ij}$  is conditional probability  $g_{k+1} = g^i$ 

$$\text{Whenever } g_k = g^i \pi_{ij} + \pi_{iz} = 1$$

Probability of  $x_k^i$  which status of  $i$  in time of  $k$  happens, follows as various equation (4 and 5):

Equation (4)

$$X_{k+1}^1 = \pi_{11} x_k^1 + \pi_{21} x_k^2$$

Equation (5)

$$X_{k+1}^2 = \pi_{12} x_k^1 + \pi_{22} x_k^2$$

## RESEARCH BACKGROUND

The researchers say that the capital asset pricing model is a factor model. That is expected return rate per share to risk of that share that is measured by (B). But different experimental tests ability of this model in repeating the describing of assets return casts doubt.

Brief (2007) concluded that assessment model of profit's unusual growth, more complicated than assessment model of remaining profit. This complicating is for growing and also for interring pretention of unusual profit's growth comparing with remaining profit.

Berger (1996) concluded that, compared with a profit to book value in explaining stock price changes are more important.

Luca L. Ghezzi and Carlo Piccardi (2003) used a new model. A novel divided valuation model is put forward by using a Markov chain. The valuation procedure turns out to be very simple, since it requires the solution of a system of linear equations. The dividend valuation model is in accordance with the empirical evidence whereby dividend-price ratios can change as time proceeds.

G. D'Annunzio "University of Chieti-Pescara. In this paper, a new dividend valuation model is proposed. It assumes that the dividend growth rate follows a semi-Markov chain. A consequence is that prices become duration dependent. The papers generalize previous contributions dealing with pricing firms on the basis of fundamentals.

Jedrzej Bialkowski (2004) In this paper a Markov switching mixture of normal distributions is applied to the monthly returns on the main stock indices for emerging financial markets in central Europe (BUX, PX50 and WIG). Additionally the results are compared to those obtained for Western Europe (DAX, CAC40 and FTSE100).

Michael Monoyios (2000) an efficient algorithm is developed to price European options in the presence of proportional transaction costs, using the optimal portfolio frame-work of Davis.

Dilip B. Madan and Martijn Pistorius (2010) A Markov chain with an expanding non-uniform grid matching risk

Neutral marginal distributions are constructed. Conditional distributions of the chain are in the variance gamma class with prespecified skewness and excess kurtosis. Time change and space scale volatilities are calibrated from option data.

Lawrence Shepp (2002) present a new model for stock price fluctuations based on a concept of information.

Youzhi Xu' Jinlin Li (2006) this article develops a Markov chain model for the management quality of Chinese A share listed companies.

Lars Peter Hansen and John C. Heaton and Nan Li characterize and measure a long-run risk return tradeoff for the valuation of financial cash flows that are exposed to fluctuations in macroeconomic growth. This tradeoff features cash flow components that are realized far into the future but are still reflected in current asset values

## RESEARCH HYPOTHESES

By considering above hypothesis some assumptions is editing and examined by follows:

H1: using the markov chain model due to better evaluation of shares value.

H2: using the P.E model due to better evaluation of shares value.

## RESEARCH METHODOLOGY

For explain the theoretical basic of studied subject, from related financial studying with research topic as told in last section, is used. For analysis and examine research hypothesis solidarity method is selected. In regression analysis for analyzing and studying relation between variables studies, using from a views, SPSS 16 software and Kolmogorov Smirnov of (k- s) test, for studying that data's distributing is normal and from description- devotion scale- average of regression analysis (multivariable of regression for comparing models) using for comparing models. Freed man test used for classifying various groups.

## STATISTICS SAMPLE

Statistics community is the research of accepted companies in Tehran exchange market. Selective samples after below restrictions are selected among statistics community this restrictions is:

1. Sample companies financials year be equal with each other and leading to march of each year.
2. During the studying period sample companies have unchanged financial year.
3. During the period of studying companies have no pause dealing.
4. No companies except investment and financial mediated and insurance.
5. Necessary information of companies is available.
6. During the period of studying companies have no loss.

Based on this and after above restrictions 64 companies during (8 years) 2004- 2008 has above conditions and by consider this sampling is done and all companies for studying is selected.

## RESULTS

### FIRST HYPOTHESIS TEST

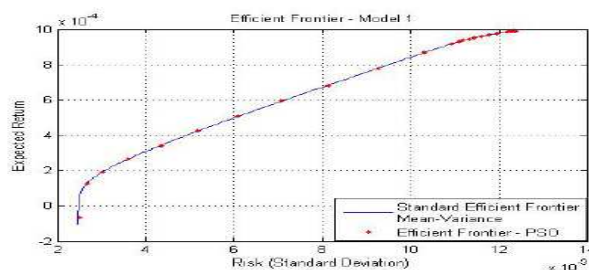
Hypothesis: using markov chain model due to better assessment of shares value.

This model just show this limitation that to tail measures of intersection capital is equal one. Second formula is something between first and third.

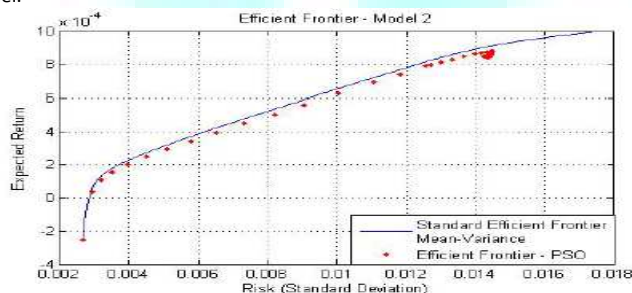
The limitations of above and below limit are added to investing capital in assets and at the end in third for model that show the most complicated case the limitation of assets number will add too

$\text{Minimize } \lambda \left[ \sum_{i=1}^N \sum_{j=1}^N x_i x_j \sigma_{ij} \right] - (1 - \lambda) \left[ \sum_{i=1}^N x_i \mu_i \right]$ <p>Subject to <math>\sum_{i=1}^N x_i = 1</math>  <math>x_i \geq 0 \quad (i = 1, \dots, n)</math></p>	First model
$\text{Minimize } \lambda \left[ \sum_{i=1}^N \sum_{j=1}^N x_i x_j \sigma_{ij} \right] - (1 - \lambda) \left[ \sum_{i=1}^N x_i \mu_i \right]$ <p>Subject to <math>\sum_{i=1}^N x_i = 1</math>  <math>\varepsilon_i \leq x_i \leq \delta_i \quad (i = 1, \dots, n)</math>  <math>x_i \geq 0 \quad (i = 1, \dots, n)</math></p>	Second model
$\text{Minimize } \lambda \left[ \sum_{i=1}^N \sum_{j=1}^N z_i x_i z_j x_j \sigma_{ij} \right] - (1 - \lambda) \left[ \sum_{i=1}^N z_i x_i \mu_i \right]$ <p>Subject to <math>\sum_{i=1}^N x_i = 1</math>  <math>\sum_{i=1}^N z_i = K</math>  <math>\varepsilon_i z_i \leq x_i \leq \delta_i z_i \quad (i = 1, \dots, n)</math>  <math>z_i \in [0, 1] \quad (i = 1, \dots, n)</math>  <math>x_i \geq 0 \quad (i = 1, \dots, n)</math></p>	Third model

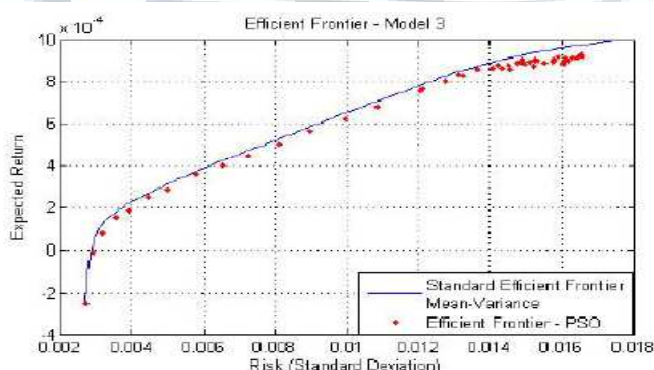
1. The value of earned shares in first model



2. The value of earned shares in second model.



3. The value of shares third model.



Hon son's test result for hypothesis about markov chain is in 1 table.

Hon son's test is used to confirm the assumption of different regimes. Amount of testing statistics F, P- value null hypothesis (absence of non-linear or not existing of threshold) rejecting in confidence level of 0/01. Therefore based on Hon son's test considered period's data have 2 regimes.

TABLE 1: RESULT OF HON SON'S TEST TO HYPOTHESIS ABOUT MARKOV CHAIN

amount of threshold	-0/0033
amount of statistics test	19/75
P- value	0/001

In more we estimating markov's displacement model.

TABLE 2: MARKOV'S DISPLACEMENT MODEL FITTING (significant in 0/07 level)

variable	scales	Criterion devotion	t. statistics
$\mu$	0/000414	0/0000187	-3/49*
$\phi_{11}$	0/497	0/122	3/91*
$\phi_{21}$	0/554	0/0617	8/98*
$\sigma_{1t}$	0/00807	0/00093	8/613*
$\sigma_{2t}$	0/00160	0/0000871	18/400*
$P_{11}$	0/712	0/08790	8/169*
$P_{22}$	0/945	0/0748	54/06*

The table 2 shows that all of considered statistics in level of 0/01 are significant so markov's displacement model with fix average and various variance is good estimate for considered data. By amount of fitted for  $\bar{O}_{1t}$  confirmed that deviations criterion of first regime's disorders sentences is greater than  $\bar{O}_{2t}$  deviations criterion of second regime's disorders sentences. Also the value obtained for transition probability shows that if efficiency of market in past period be  $S_t = 0$ , with probably of %71 will in next period are in previous status again, but the gain result from possibility of supplement is as, if the market in past period be with high variance, with probably %29 to turbulence or status  $S_t = 1$  moving. Also, if in the past period market has low variance approximately with probability of %5 are transmitted to high variance. Based on given formula amounts of day's average in market in high turbulence status 6 days and amount of day's average when efficiency in low turbulence are 20 days. If efficiency diagram design for this period we can tell in the periods which market was high turbulence, average of required days to moving efficiency to regime with lower turbulence as intuitive, almost is that the estimated value in mark off's displacement model.

TABLE 3: MARKOV DISPLACEMENT MODELS RECOGNIZING TEST

recognizing test	Statistic	p-value
(4)LB	0/712	0/163
(17)AIC	4/88	
(17)SBC	31/560	
Log-likelihood	1503/45	

Yang statistics, box is also confirmed that the above estimation is suitable for data efficiency and assumption of wrong sentences ran doming is verified. On the other rand mark off's displacement model clearing for stock dealers some interesting points when the market stands in higher variance. determining the amount of variance as independent functional from pas period variance and shocks whenever market stand in each regime and also predicting amount of days which market in each regime, as known a application tools for stock dealers.

In markov's model these points are considerable:

By increasing the number of property, Matrix covariance's volume of accountant is too large.

No low or nigh border for per shares of property in total of shares is but in act maybe there are a lot of reason for restriction of property's are in total shares.

General criterion of risk is variance or its second stem, deviations criterion. This criterion, for a property which has normal distribution and dealing in an efficient market is acceptable criterion if these two quality doesn't exist, variance is not good for showing the shares value.

## SECOND HYPOTHESIS TEST

Hypothesis: using the P/E model due to better assessment of shares value. In this step for doing the hypothesis test of research, based on Dowdell model, classifying company- by using both of P/E and P/B ratio done in years. In this research he proved that share holders price has a special process and can gain new data from last data and so investors that have a lot insight and awareness can fore cast future prices.

First group declining companies with low ratio P/E and P/B - group No 2 Involving rotation1al companies with high P/E and low P/E – groupNo3. Unveiling competitive companies with average P/E and P/E- group No 4. Involving developed Companies with low P/E and high P/E- Group No 5. Involved growing companies with high P/E and high P/B .So Company's classifying ass follow this table4:

TABLE4: COMPANY'S CLASSIFYING

	P/E	P/E	P/E
	5/5P/E<<0 Low	5/5<P/E<7 medium	7P/E>0 P/E< High
P/B	2/3P/B< Low	Declining companies	Other companies
P/B	<5/3P/B2/3< medium	Other companies	Competitive companies
P/B	5/3P/B> High	Grown companies	Other companies

Remaining companies in last 4 group which have medium P/E or medium P/B but both of them were not medium have been out for difficulty of classifying them and for increase the coordination between other groups. Then solidarity test of Spearman for study the solidarity between ratio of P/E and P/B and studied

variables in total 8 years period and in grouping base on P/E ratio like groups with high, low and medium P/E and also, P/B groups as high, low and medium P/B, also in quintet groups is done.

TABLE 5: THE RESULT OF RELATION BETWEEN SIGNIFICANT P/E WITH VARIABLES IN VARIOUS GROUPING

P/B Grouping base on				P/E Grouping base on				Total grouping			
Level of confident	Coefficient solidarity	variable		Level of confident	Coefficient solidarity	Variable		Level of confident	Coefficient solidarity	Variable	P/E
%95	-0/234	RI	High	%95	1330/	RI	High	%99	-0/173	$\Delta$ RI	
%99	-0/238	$\Delta$ RI		%99	0.205	ROE					
%99	-0/282	ROE									
%95	-0/189	$\Delta$ RI%	Low				Low				
%99	-0/387	ROE									
%99	-0/374	RI	Medium	%95	1990/	$\Delta$ RI	Medium				
%99	-0/231	$\Delta$ RI									
%99	-0/595	ROE									

TABLE 6: THE RESULT OF RELATION BETWEEN SIGNIFICANT P/B WITH VARIABLES IN VARIOUS GROUPING

P/B Grouping base on				P/E Grouping base on				Total grouping			
Level of confident	Coefficient solidarity	variable		Level of confident	Coefficient solidarity	variable		Level of confident	Coefficient solidarity	variable	P/B
%99	-0/254	RI	High	%99	0/491	RI	High	%99	0/415	$\Delta$ RI	
%99	0/518	ROE	High	%99	0/735	ROE					
%99	0/258	ROE	Low	%99	0/538	RI	Low	%95	0/102	% $\Delta$ RI	
				%99	0/900	ROE		%99	0/715	ROE	
%99	0/400	ROE	medium	%99	0/545	RI	Medium				
				%99	0/333	% $\Delta$ RI					
				%99	0/995	ROE					

In research was observed of that remaining profit changes between 3 P/E groups was different and stability of P/E and P/B in grouping base on various compounds of these ratios is different. P/B is more stable than P/E and by passing time ROE more stable than rate of remaining shares value's growth.

The result shows that in each grouping according to P/E and P/B, ratio of P/B keeps its relation with ROE and coefficient of relation with grouping is also get better and this shows that P/B is more stable than P/E. to tally the result of solidarity test in quintet groups which grouping of them base on both P/E and P/B is done, the status of ratios in relation with studied variables better shows, especially in comparison with status which using only one of these ratios.

Lack of significant relation P/E ratio with variables in group 5 which included hundred company- year, and has no limit in examine from view of numbers, explain that when the company is growing, using P/E ratio for predicting the shares value's change and growing, cannot be sufficient factor for analysts and investments. On the other hand status of P/E ratio when both of P/E and P/B in company is low (first group) which is called declining companies, shows that in this group by coming down of P/E ratio shares value and its change and efficient of shares value's owners salary will increase. Then using of this ratio and also P/B ratio can help the investment in predict of shares value and its changes. Lack of significant relation P/E ratio with percent of shares value's changes (% $\Delta R_t$ ) and plus solidarity of P/B ratio with this variable- when both of P/B and P/E is in medium level, shows that for predicting the shares value in companies which are competitive, we can use P/B ratio for predict.

TABLE 7 - TEST RESULT

% $\Delta$ RI		$\Delta$ RI		
P		P		
0/5	=0/002	0/37	=0/222	Mann Whitney mark
0/458	=0/104Z	0/45	=0/10Z	Mann Whitney
0/984	=294W	0/439	=0/252W	Middle compare
0/837	=0/995t	0/006	=-2/63t	single sample T test

In first group according to the result of mark test the number of observation lower than middle are more than observation higher than middle. Also single sample T test shows that the average of remaining profit variation in 8 years after (2003) have no significant variation with average of (2003) and mark of statistic test shows that the variation is reduced in 8 Years.

TABLE 8 - TEST RESULT

% $\Delta$ RI		$\Delta$ RI		
P		P		
0/661	=0/416Z	0/244	=0/693Z	Mann Whitney mark
0/383	=0/295Z	0/272	=0/605Z	Mann Whitney
0/565	=133W	0/848	=148W	Middle compare
0/668	=0/438t	0/624	=0/317t	single sample T test

The second group says that in rotation companies with high ratio P/B and low P/B. Expecting that have increase in share value. But despite of the result of mark test and average of rank shows that the variation of share value is additive after (2004) toward (2004).

TABLE 9 - TEST RESULT

% $\Delta$ RI		$\Delta$ RI		
P		P		
0/02	=2/30Z	0/999	=0/000Z	Mann Whitney mark
0/007	=2/678Z	0/800	=0/252Z	Mann Whitney
0/533	=31W	0/729	=46W	Middle compare
0/11	=-1/65t	0/279	=1/105t	single sample T test

According the examinations of competitive companies with average ratios P/B and P/B, this results determined that the number of obtained values form average. This say the variation of share value and its growth was not remarkable in the years after 2004.

TABLE 10- TEST RESULT

%ΔRI		ΔRI		
P		P		
0/500	=0/0Z	0/185	=0/894Z	Mann Whitney mark
0/209	= 10Z	0/14	=1/07Z	Mann Whitney
0/902	=133W	0/713	=12W	Middle compare
0/766	=-0/803t	0/256	=0/716t	single sample T test

The results of tests show that in developed companies with low ratio P/B and high P/B the number of obtained values above average have a little difference with number of obtained values lower than average.

TABLE 11- TEST RESULT

%ΔRI		ΔRI		
P		P		
0/764	=0/721Z	1/00	=0/000Z	Mann Whitney mark
0/429	=-0/177Z	1/00	=0/000Z	Mann Whitney
0/821	=266W	0/867	=294W	Middle compare
0/152	=1/03t	0/568	=0/173t	single sample T test

About group of growing companies with high ratio P/B and high P/B the result of mark tests and rank average show that the rank of the values higher than middle in base year have no much difference toward the obtained lower than middle.

In first section tests for choosing analysis companies in static sample, by using solidarity and regression tests signify ancient relation of accepted companies share value in Tehran stock exchange with market efficiency examined. That showed from 168 first analysis companies share efficiency or markets efficiency has significant relation that this has

Usable results for researchers and inlayers of capital market. In second section tests that researched by salad artist of assessments ratio relation P/B and P/B with variables like shares(RI), share varies (ΔRI) share growth variable (%ΔRI) and salaries efficiency of share holders (ROE) too and in a group according to each divided P/E and P/B ratios and in-group of both of them we earned that his relation after making group more clear and even is more powerful and fixing of assessment ratios P/E and P/B in protecting relation and its intensity with variables examined that result said that P/B ratio has more firmness toward P/E ratio. reversed solidarity of P/E ratio with reminder profit varies (ΔRI) and direct solidarity of P/B ratio with shares varies (RI), shares growth, (%ΔRI) and its powerful solidarity with efficiency of share holders salaries (ROE) that is last researches said about it and here observed that show the importee of using of both parties P/B and P/E in financial analysis.

P/E everything or the last word is not told about shares value but in comparison the companies of the industry, the whole of market or P/E's historical process of a company is profitable.

Remember that:

A. P/E is a ratio and getting from dividing the P (price) or day's price shares of E (EPS) or profit of per share.

B. we have 3 kinds of EPS called protracted, future and medium.

C. historically average of P/E's stands in efficient of 3/2- 13/2.

D. in theory per share's P/E tells us the investments willing now many Rails pay for per Rail profit.

E. better analysis from P/E is, that is the reflex of markets optimistic from future growth of a company.

F. P.E in comparison with market's price is better index for share value.

G. without considering the rate of industry growth, it is meaningless talking about high or low in P/E.

H. change in base of accounting including several allowed method for profit (EPS), getting difficult in analysis P/E.

I. doesn't only by relying P/E coefficient deal the shares.

As observe in table 12, statically there is no significant difference between explanatory powers of these models in determining shares value but we can say that with considering all of criterions, almost the model of P/E assessment is stronger model than markov in determining shares value at Tehran Stock exchange.

In this research by considering table 13, as P- value in all of tests has been less than 5%, all of independent and dependent variables during research was in stable level.

TABLE 12: COMPARISON OF MODELS EXPLANATORY POWER

Schwarz criterion (SBIC)	Akaike criterion (AIC)	Regression statistics (F)	Mean square error (MSE)	Adjustment coefficient	determining
31/468	30/395	38/62	863211	90/75%	P/E
31/472	30/398	38/48	864718	90/71%	Markov chain

TABLE 13: TABLE OF RESEARCH VARIABLES WITH TESTING THE ROOT OF CONSOLIDATED UNIT

Augmented Dickey-Fuller	Philips pronto	Im pesaran and shin (IPS)	
1021/34	819/340	-141/871	Statistics testing
0/0000	0/0000	0/0000	P-value

## CONCLUSION AND DISCUSSION

One of the important information contained in company's financial statement, is accounting profit, most of financial analysis in rate of shares price and assessment of economic enter prices action using it. In markov chain model speed of growing the shares profit consider as variable which in this condition is closer to reality.

result of research shows that almost in all cases, there is no significant difference between explanatory power of these models in determining shares value and investments in Tehran Stock exchange market can for assessment of shares uses from these 2 models, but in most cases P/E assessment model by considering less standard error of regression can say, partly is better model in determining the company's value.

## RESEARCH SUGGESTIONS

Attention to be confirmed second hypothesis( using the P/E model due to better evaluation of shares value) is suggested to actually and potentially investors use from P/E model for price assignment and share value, timely purchase and to sell.

Proposals for future investigation:

According to experiences in this research, we present some suggests to interested students to this case and hope to get better values to get goals in this knowledge with researching. And see great use of its results in action and in society.

1-According to this research did between accepted companies in Exchange it suggest to do between OTC companies too

2-Doing this research between not accepted companies n exchange.

- 3-According to that in this research comparison of shares values did by Markov chain model. It suggest to comparison assets value of the company lay this model
- 4-According to that in this research comparison of shares value did by Markov chain model, it suggest to comparison debt value of the company by this model
- 5-Comparison with other stock valuation models such as economic value added model and sharing profit discount model

## REFERENCES

1. Annunzio, G. D. (2003), "Stock valuation along a markov chain" University of Chieti-Pescara. Via dei Vestini, Chieti, Italy. vol. 31, p. 66013.
2. Berger, P.G., Ofek, E., & Swary, I. (1996), "Investor Valuation of the Abandonment Option", Journal of Financial Economics, Vol. 42, No. 2, pp. 257-287.
3. Bialkowski, Jedrzej. (2004), "Modeling returns on stock indices for western and central European stock exchanges - a markov Switching approach". South Eastern Europe journal of economics, vol. 2, pp. 81-100.
4. Brief, R.P. (2007), "Accounting Valuation Models: A Short Primer", Abacus, Vol. 43, No. 4, pp. 429-437.
5. Dilip, B. & Pistorius, Madan and Martijn. (2010), "The valuation of structured products using Markov chain models". University of Maryland. March, 2.
6. Hansen, Lars Peter. and Heaton, John C. and Li. Nan. (2004), "Consumption Strikes Back? Measuring Long-Run Risk". First draft: May Current draft: June 2005.
7. Luca, L.Ghazzi and Carlo Piccardi. (2003), "Applied Mathematics and Computation", vol. 141, pp. 385-393.
8. Monoyios, Michael. (2000), "Option Pricing with Transaction Costs Using a Markov Chain Approximation". Department of Economics and Finance Brunel University Uxbridge, Middx UB8 3PH, UK. June
9. Shepp, Lawrence. (2002) "A model for stock price fluctuations based on information", IEEE transactions on information theory, vol. 48, no. 6, June.
10. Youzhi, Xu & Jinlin, Li. (2006), "A Markov Chain Model for Forecasting the Management Quality of Chinese a Share Listed Companies". Vol. 35, Issue. 10, pp. 1909 – 1919.

**APPLICATION OF PERT TECHNIQUE IN HEALTH PROGRAMME MONITORING AND CONTROL****DR. SUSMIT JAIN****ASST. PROFESSOR****INDIAN INSTITUTE OF HEALTH MANAGEMENT RESEARCH****JAIPUR****ABSTRACT**

*The Program (or Project) Evaluation and Review Technique (PERT) and Critical Path Method (CPM) are two analytical techniques which could be applied in monitoring and control of health programmes and projects. The technique helps in answering the expected time of completion of projects, identifying the jobs and activities and their start and finish times, the effect of delay of certain activities, what resources are required at various points of time, revising and rescheduling the projects and what additional resources are required, etc. Some of the examples of projects or programmes where PERT/CPM techniques could be applied are carrying out vaccination drive, eradication of polio, construction of a new hospital, addition of new wing in the hospital, Commissioning of Primary Health Centers (PHCs) or Community Health Centers (CHCs), Air-conditioning of Hospitals, Construction and commissioning of an intensive care unit, setting up a medical college, Organizing a Family Planning Camp, Conducting a training programme for health workers, establishment of network of Family Planning Welfare Centers, Construction of hostel for nurses, Mass Health education campaign, Organizing a sanitation drive, etc. This research specifically discusses the use of PERT technique in carrying out Vaccination Programme and will try answer questions like expected project completion time, effect of delay in completion of activities and associated probability of completing the project by the specified time.*

**KEYWORDS**

PERT; CPM; Activity; Event; Slack; Float; Crashing; Beta Distribution.

**INTRODUCTION**

In all the Five Year Plans there had been outlay on number of health programmes and projects for the purpose of providing health care services to the rural and urban population. But the projects generally suffer in terms of timely completion and according to the schedules laid down. The Program (or Project) Evaluation and Review Technique (PERT) and Critical Path Method (CPM) are two analytical techniques which could be applied in monitoring and control of health programmes and projects. The technique helps in answering the expected time of completion of projects, identifying the jobs and activities and their start and finish times, the effect of delay of certain activities, what resources are required at various points of time, revising and rescheduling the projects and what additional resources are required, etc.

Some of the examples of projects or programmes where PERT/CPM techniques could be applied are carrying out vaccination drive, immunization programmes and vaccination drives, national programmes for tuberculosis control, malaria control, blindness control, HIV preventions and control, construction of a new hospital, addition of new wing in the hospital, Commissioning of Primary Health Centers (PHCs) or Community Health Centers (CHCs), Air-conditioning of Hospitals, Construction and commissioning of an intensive care unit, setting up a medical college, Organizing a Family Planning Camp, Conducting a training programme for health workers, establishment of network of Family Planning Welfare Centers, Construction of hostel for nurses, Mass Health education campaign, Organizing a sanitation drive, etc.

**HISTORICAL BACKGROUND**

The PERT Methodology was developed in 1957 to simplify the planning and scheduling the U.S. Navy's Polaris nuclear submarine project. CPM was developed independently by Du Pont and Remington Rand Corporation USA at the same time.

**METHODOLOGY**

PERT/CPM techniques involve the depiction of the project in terms of activities and events. The activities consume time and resources and events mark the start or end of an activity. Some of the examples of 'activity' and events in health management context could be:

**TABLE 1 : EXAMPLES OF ACTIVITIES AND EVENTS IN HEALTH SECTOR**

Activity	Event
Preparing a medical plan of the hospital	Medical plan made or completed
Placing an order for vaccines	Order for vaccines placed
Vaccinating children	Vaccination drive completed
Preparing curriculum for health workers training	Curriculum for health workers completed

PERT/CPM require the use of network diagrams which are the graphical or diagrammatic portrayal of the project. We could take an example of a vaccination programme against smallpox comprising of 23 activities which are shown below:

**ACTIVITIES IN VACCINATION PROGRAMME**

1. Survey the population
2. Prepare policies and procedures for records and reports
3. Get the vaccinators into position
4. Prepare estimates of vaccine, equipment, vehicles, etc. required
5. Procure vehicles on loan from other departments and put them into position
6. Get the forms printed
7. Plan public meetings
8. Plan strategy to enlist the cooperation of community leaders
9. Orient vaccinators with respect to the project, plans, jobs, etc.
10. Place order for vaccine
11. Call tenders for equipment
12. Assign population and post vaccinators.
13. Receive vaccine
14. Give contract for equipment.
15. Deliver vaccine at PHC
16. Receive vaccine
17. Deliver equipment at PHC

18. Conduct public meetings
19. Motivate community leaders
20. Help vaccinators to develop rapport with the community
21. Vaccinate
22. Review performance
23. Prepare project report and submit it.

The next stage of implementation of project is to estimate the time of completion of the activities. In PERT, the average time for an activity takes into account three time estimates for each activity.

1. The optimistic time estimate: This is the estimate of shortest possible time within which a given activity can be completed. This assumes that ideal circumstances prevail and everything goes well. This is denoted by  $t_o$  or  $a$ .
2. The pessimistic time estimate: This is the estimate of longest possible time required to execute a given activity if abnormal conditions prevail. This is generally denoted by  $t_p$  or  $b$ .
3. The most likely time estimate: This is the estimate of the time required to execute an activity under normal conditions. This is generally denoted by  $t_m$  or  $m$ .

The three time estimates are reduced to one time estimate (expected time, denoted by  $t_e$ ) using the formula,

$$t_e = \frac{t_o + 4t_m + t_p}{6} \dots\dots\dots (i)$$

In the vaccination project, for a block in Jaipur district, the three time estimates were estimated based on past experience, and one average or expected time estimate was calculated. This is shown in the Table 2 below:

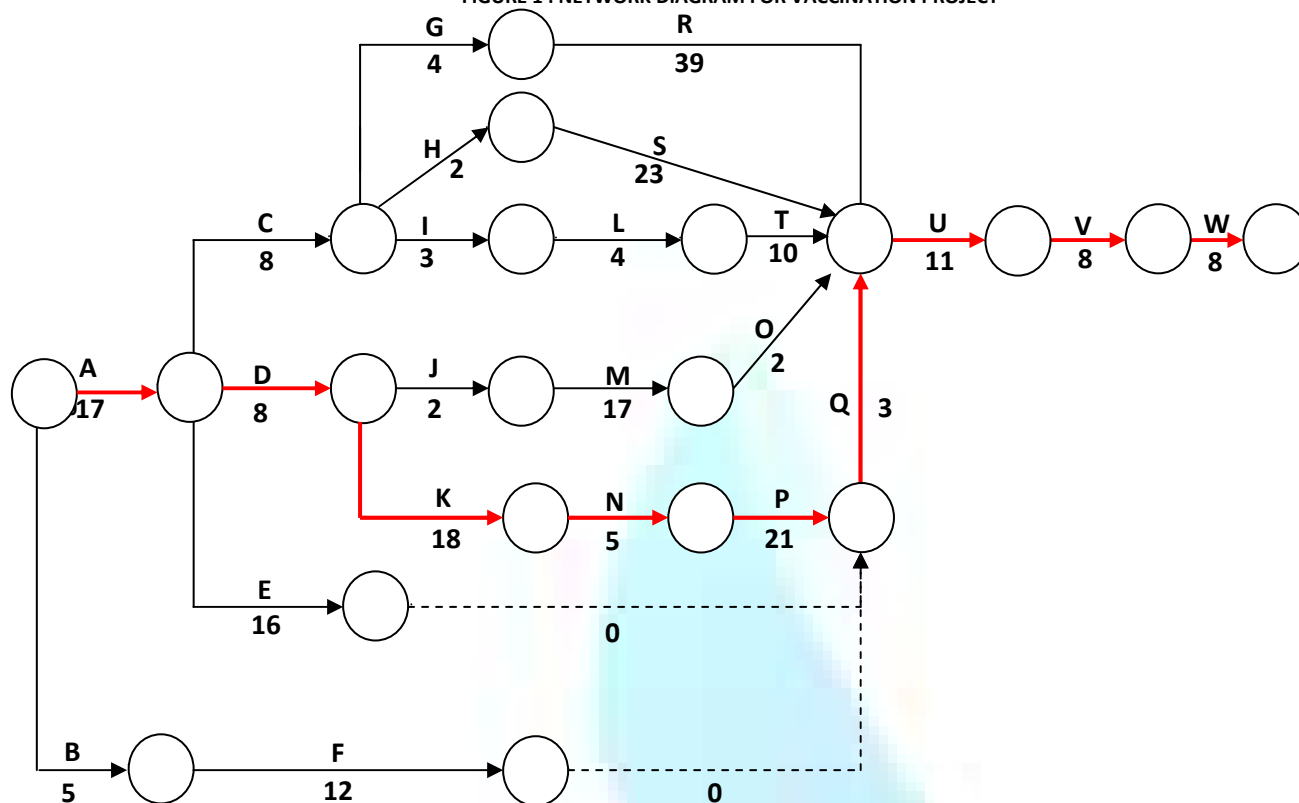
**TABLE 2: PERT TIME ESTIMATES FOR VACCINATION PROGRAMME**

ID	Activity description	Predecessors	Time Estimates (days)			Expected time $t_e^*$
			$t_o$	$t_m$	$t_p$	
A	Survey the Population	-	7	15	35	17
B	Prepare policies and procedures	-	2	5	8	5
C	Get the vaccinators into position	A	4	7	15	8
D	Prepare estimates of vaccine, equipment, vehicles, etc. required	A	3	7	15	8
E	Procure vehicles on loan from other departments and put them into position	A	7	15	30	16
F	Get the forms printed	B	5	10	25	12
G	Plan public meetings	C	1	3	10	4
H	Plan strategy to enlist the cooperation of community leaders	C	1	2	3	2
I	Orient vaccinators with respect to the project, plans, jobs, etc.	C	2	3	3	3
J	Place order for vaccine	D	1	2	5	2
K	Call tenders for equipment	D	10	14	40	18
L	Assign population and post vaccinators.	I	1	3	10	4
M	Receive vaccine	J	10	15	30	17
N	Give contract for Equipment	K	1	4	10	5
O	Deliver vaccine at PHC	M	1	2	5	2
P	Receive Equipment	N	7	20	40	21
Q	Deliver equipment at PHC	P, E, F	1	3	5	3
R	Conduct public meetings	G	15	30	100	39
S	Motivate Community Leaders	H	10	20	50	23
T	Help vaccinators to develop rapport with the community	L	7	10	15	10
U	Vaccinate	R, S, T, O, Q	6	10	20	11
V	Review Performance	U	2	7	15	8
W	Prepare project report and submit it	V	2	7	20	8

\* $t_e$  estimates are to nearest integer.

The PERT analyst then tries to logically sequence the activities i.e. identifying the predecessor and successor activities. The sequential constraints and the associated network diagram for the vaccination programme is shown in Table 2 and Figure 1.

FIGURE 1 : NETWORK DIAGRAM FOR VACCINATION PROJECT



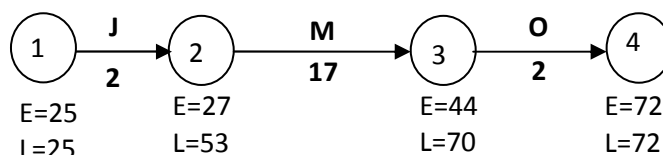
The critical path is shown through bold arrows i.e. A-D-K-N-P-Q-U-V-W and the total expected duration of the project comes out to be 99 days. Two time computations i.e. the Earliest Start (ES) and Latest Finish (LF) are shown on the network. The remaining two i.e. Earliest Finish (EF) and Latest Start (LS), Float or Slack are computed and shown in table below.

TABLE 3: PERT TIME COMPUTATIONS FOR THE VACCINATION PROGRAMME

		Expected Time	Earliest Start (ES)	Earliest Finish (EF)	Latest Start (LS)	Latest Finish (LF)
ID	Activity description					
A	Survey the Population	17	0	17	0	17
B	Prepare policies and procedures	5	0	5	52	57
C	Get the vaccinators into position	8	17	25	21	29
D	Prepare estimates of vaccine, equipment, vehicles, etc. required	8	17	25	17	25
E	Procure vehicles on loan from other departments and put them into position	16	17	33	53	69
F	Get the forms printed	12	5	17	57	69
G	Plan public meetings	4	25	29	29	33
H	Plan strategy to enlist the cooperation of community leaders	2	25	27	47	49
I	Orient vaccinators with respect to the project, plans, jobs, etc.	3	25	28	55	58
J	Place order for vaccine	2	25	27	51	53
K	Call tenders for equipment	18	25	43	25	43
L	Assign population and post vaccinators.	4	28	32	58	62
M	Receive vaccine	17	27	44	53	70
N	Give contract for Equipment	5	43	48	43	48
O	Deliver vaccine at PHC	2	44	46	70	72
P	Receive Equipment	21	48	69	48	69
Q	Deliver equipment at PHC	3	69	72	69	72
R	Conduct public meetings	39	29	68	33	72
S	Motivate Community Leaders	23	27	50	49	72
T	Help vaccinators to develop rapport with the community	10	32	42	62	72
U	Vaccinate	11	72	83	72	83
V	Review Performance	8	83	91	83	91
W	Prepare project report and submit it	8	91	99	91	99

Float or slack of an activity is the amount by which an activity could be rescheduled without increasing the project duration. For all critical activities float is zero, i.e. they could not be delayed. There are generally three measures of float which are generally used in computations. These are total float, free float and independent float. Let us consider the three measures of float in the case of a fragment of the network of the vaccination programme.

FIGURE 2 : PART OF NETWORK OF VACCINATION PROGRAMME

**Total Float**

The earliest tail and the latest head event times of an activity can be looked on as limits within which a non-critical activity can 'move' without increasing the project time.

For activity J:

The earliest possible starting time is day 25

The latest possible finishing time is day 53

∴ the total time available for the activity is 28 days

But the duration of activity is 2 days: i.e. the activity can 'move' by 26 days. Any greater movement will create a new critical path(s) and increase the project time. ∴ 26 days is the total float for activity J.

**Free float**

For activity M:

The total time available is 43 days

But the duration is 17 days

∴ the total float is 26 days

But if activity J uses its entire total float, then event 2 will not be reached until day 53.

In this case:

The available time for activity M is 17 days

But the duration of activity M is 17 days

So that if activity J uses its entire total float, then activity M has no float, hence the free float of J is zero, i.e. the amount of float which could be used without affecting subsequent activities. Similarly the free float of M is zero because if M uses its entire total float (of 26 days), then activity could only be finished at day 70, reducing the float of O to zero.

**Independent Float**

Independent float is the amount of float that can be used without affecting either subsequent or preceding activities. It is set to zero if it comes out to be negative.

**Rules for calculating float**

The **total float** is the difference between the L value for the head event and the E value of the tail event minus the duration.

The **free float** is the difference between the E value of the head event and the E value of the tail event minus the duration.

The **independent float** is the difference between the E value of the head event and the L value of the tail event minus the duration. (set to zero if negative). It indicates the time availability for an activity even if it has Late Start and Early Finish.

The calculation of float is illustrated for the vaccination programme case in the following Table 4:

TABLE 4: FLOAT TABLE FOR VACCINATION PROGRAMME

Activity	Duration	Floats (days)			Remarks
		Total	Free	Independent	
A	17	0	0	0	Critical
B	5	52	0	0	
C	8	4	0	0	
D	8	0	0	0	Critical
E	16	36	0	0	
F	12	52	0	-52(0)	
G	4	4	0	-4(0)	
H	2	22	0	-4(0)	
I	3	30	0	-4(0)	
J	2	26	0	0	
K	18	0	0	0	Critical
L	4	30	0	-30(0)	
M	17	26	0	-26(0)	
N	5	5	0	0	Critical
O	2	26	26	0	
P	21	0	0	0	Critical
Q	3	0	0	0	Critical
R	39	4	4	0	
S	23	22	22	0	
T	10	30	30	0	
U	11	0	0	0	Critical
V	8	0	0	0	Critical
W	8	0	0	0	Critical

Negative values of independent float signify that there is no independent float.

**PROBABILITY OF COMPLETION BY SCHEDULED DATE**

Suppose the Chief Medical Officer wants that the project to be completed within 90 days if possible. What should the Health Officer tell his CMO about the likelihood that the Vaccination Programme be completed within 90 days. PERT can help in answering this question and also estimate alternative Scheduled Completion Dates with 70 per cent, 80 per cent and 95 per cent assurance of completion so that the Chief Medical Officer can choose one which suits him most.

Let us first estimate the probability of completion of the vaccination project within 90 days. PERT uses Beta-distribution (a frequency distribution curve) and uses the formula for calculating the standard deviation based on the three time estimates  $t_p$ ,  $t_o$  and  $t_m$  as shown below:

Standard Deviation of an activity ( $\sigma$ ) =  $\frac{t_p - t_o}{6}$  ..... (ii)

The variance of the project is calculated by adding the variances of the activities lying on the critical path.

$$\sigma_c = \sqrt{\sigma_1^2 + \sigma_2^2 + \dots + \sigma_n^2} \dots\dots\dots (iii)$$

Where  $\sigma_1^2$  is the variance of the first activity lying on the critical path,  $\sigma_2^2$  is the variance of the second activity lying on the critical path and  $\sigma_n^2$  is the variance of the last activity lying on the critical path.

The normal variate Z is calculated using the formula:

$$z = \frac{T_s - T_e}{\sigma_c} \dots\dots\dots (iv)$$

Let us apply the concept of PERT in our Vaccination case.

TABLE 5: VARIANCES OF ACTIVITIES ON THE CRITICAL PATH

Time Estimates (days)				Expected time	Variance	Variances of Critical Activities
ID	to	tm	tp	te *		
A	7	15	35	17	21.78	21.78
B	2	5	8	5	1.00	
C	4	7	15	8	3.36	
D	3	7	15	8	4.00	4.00
E	7	15	30	16	14.69	
F	5	10	25	12	11.11	
G	1	3	10	4	2.25	
H	1	2	3	2	0.11	
I	2	3	3	3	0.03	
J	1	2	5	2	0.44	
K	10	14	40	18	25.00	25.00
L	1	3	10	4	2.25	
M	10	15	30	17	11.11	
N	1	4	10	5	2.25	2.25
O	1	2	5	2	0.44	
P	7	20	40	21	30.25	30.25
Q	1	3	5	3	0.44	0.44
R	15	30	100	39	200.69	
S	10	20	50	23	44.44	
T	7	10	15	10	1.78	
U	6	10	20	11	5.44	5.44
V	2	7	15	8	4.69	4.69
W	2	7	20	8	9.00	9.00
Variance of the Critical Path						102.86

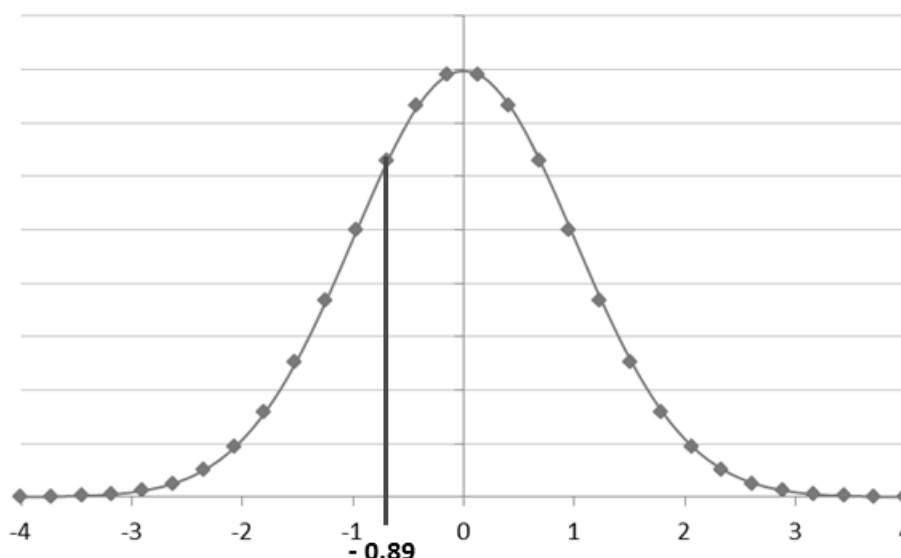
The variance of the critical path comes out to be **102.86** and the standard deviation ( $\sigma_c$ ) of the critical path comes out to be **10.14**. The normal variate corresponding to schedule completion time of 90 days come out as:

$$z = \frac{90 - 99}{10.14}$$

$$z = -0.89$$

The location of z on a beta-distribution equated is shown below:

FIGURE 3: BETA DISTRIBUTION CURVE AND COMPUTATION OF DESIRED AREA



And the area corresponding to this (from normal distribution curve) 0.3133 or 31 % chance of being completed within 90 days.

Suppose we want to find that schedule completion times which have 70 %, 80% and 95% chance of being completed. In that case the values of z are 0.52 (for 70%), 0.84 (for 80%) and 1.65 (for 95%). The schedule completion days are:

- $99 + 10.14 (0.52) = 104.28$  days (which has 70% chance that the project will be completed in this specified duration)
- $99 + 10.14 (0.84) = 107.5$  days (which has 80% chance that the project will be completed in this specified duration)
- $99 + 10.14 (1.65) = 115.7$  days (which has 95% chance that the project will be completed in this specified duration).

The methodology discussed is entirely based on time dimensions and the project completion time and the probability of its completion on time were calculated and a criteria for differential control of activities based on Critical Path was explored.

Project cost analysis involves understanding the use of resources and their deployment in various activities. The objective of project cost analysis or crashing is to find out the optimum duration of the project at minimum total cost. The procedure used in this is called as crashing or reducing the project duration and the effect on direct and indirect cost of the activities are taken into consideration.

## CONCLUSION

The methodology of Programme Evaluation and Review Technique (PERT) is based on 'time'. It assumes that any project or programme is a conglomeration of many activities or jobs. These activities are interrelated and interdependent on certain dimensions. The accomplishment of all the activities will only lead to the completion of the project/programme. The basic philosophy underlying PERT/CPM is nothing new and much of this is known to us. PERT/CPM provides a scientific basis for such a project planning. It provides a powerful and logical scheme for the execution of activities and for planning of the resources required to execute the activities, to facilitate the total project completion within the optimum time through expending minimum resources. It forces the project manager to think logically in the face of uncertainty, draws attention to various kinds of decisions to be made at different stages of the project. In the ultimate analysis, it is a scientific methodology that helps in implementation of projects within the constraints of time and resources.

## REFERENCES

1. Arnold, Mary F., "Health Programme Implementation through PERT, Administrative and Educational Uses", American Public Health Association, Western Regional Office, San Francisco, 1966, USA.
2. Aswathappa K., Shridhara Bhatt, 'Production & Operations Management', Second Revised Edition 2008, Reprint 2012, Himalaya Publishing House, Mumbai.
3. Bainbridge J., Sapirie S., "Health Project Management – A Manual of Procedures for Formulating and Implementing Health Projects", WHO, Geneva, 1974
4. Bedi Kanishka, "Production & Operations Management", Third Impression 2008, Oxford University Press, New Delhi.
5. Chary S. N., "Theory and Problems in Production and Operations Management", Second Reprint 1996, Tata McGraw-Hill Publishing Company Limited, New Delhi.
6. Chase B. Richard, Jacobs Robert F., Aquilino J. Nicholas, "Operations Management for Competitive Advantage", tenth edition 2003, Tata McGraw-Hill Publishing Company Limited, New Delhi.
7. Goel B.S., "Production and Operations Management", Twenty Three Edition 2010, Pragati Prakashan, Meerut, India.
8. Jan Vissers and Roger Beech, "Health Operations Management", First published 2005, Routledge, New York, USA.
9. Krajewski J. Lee, Ritzman P. Larry, "Operations Management – Processes and Value Chains" 7th Edition (2006), Pearson Education, Delhi.
10. Mahajan M., "Industrial Engineering and Production Management", Second Revised edition 2002, Dhanpat Rai & Co. (P) Ltd., Delhi.
11. McLaughlin Daniel B., Hays Julie M., "Healthcare Operations Management", First Ed. 2008, Health Administration Press, Chicago, AUPHA Press, Washington, DC, USA.
12. Mukhopadhyay S.K., 'Production Planning and Control', Second Printing, Dec 2004, Prentice-Hall of India Private Limited, New Delhi.
13. Mulhemann Alan, Oakland John, Lockyer Keith, Sudhir Bodduluri, Katyayani Jasti, "Production & Operations Management" First Impression, Indian Subcontinent Adaptation, 2008, Pearson Education, Delhi.
14. Ozcan A. Yasar, "Quantitative Methods In Health Care Management Techniques and Applications", 2nd Edition 2009, John Wiley & Sons, USA.
15. Ramaiah J.T., "Health Programme Management Through PERT", First Edition 1979, Shakti Malik Abhinav Publications, New Delhi.
16. Reddy Muni Nadha C., "Industrial Engineering and Management", First Edition 2002, New Age International (P) Ltd, New Delhi.
17. Ronen Boaz, Pliskin Joseph S., "Focused operations management for health services organizations", First Edition 2006, John Wiley & Sons, San Francisco, USA.
18. Sharma J.K. "Operations Research – Theory and Applications", 4th Edition, 2009, Macmillan Publishers India Ltd, New Delhi.
19. Sharma J.K., "Operations Research – Problems and solutions", First edition 2002, Macmillan India Ltd., New Delhi.
20. Sharma S.D., "Operations Research", Fourteenth Edition Reprint 2005, Kedar Nath Ram Nath & Co, Meerut, India.
21. Taha A. Hamdy, "Operations Research – An Introduction", Eight Edition 2009, Pearson Education, Delhi.
22. Vohra N D., "Quantitative Techniques in Management", 4th Edition 2010, Tata McGraw-Hill Publishing Company Limited, New Delhi.

# ESTIMATION OF TECHNICAL EFFICIENCIES OF INDIAN MICROFINANCE INSTITUTIONS USING STOCHASTIC FRONTIER ANALYSIS

**B.CHANDRASEKHAR**  
**ASST. PROFESSOR**  
**DEPARTMENT OF MANAGEMENT STUDIES**  
**SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING**  
**MUDDENAHALLI**

## ABSTRACT

The commercial banking sector does not consider the poor easily bankable due to the high risk factor in the absence of collateral. Microfinance has come in as a potential alternative to address this problem. The key to growth and sustainability of the sector is sufficient and consistent inflow of funds and efficient operation of the microfinance institutions. Research evidence shows that high levels of demand for micro credit reflects a huge gap between supply and demand for credit, which is estimated at around US\$ 250 billion. In such a scenario, the efficiency of microfinance institutions in being able to use every bit of input by converting it into loans and reducing their costs of operation and inefficiencies become extremely important. Efficiency studies based on financial ratio comparisons do not have the ability to deal with random noise that arise due to errors in measurement and also inefficiencies that arise due to external influences on the microfinance institutions. Moreover, there are very few studies on efficiencies of Indian microfinance institutions. This study focuses on the estimation of technical efficiencies of microfinance institutions in India using a parametric technique called Stochastic Frontier Analysis. The study is based on the financial data of 36 Indian Microfinance institutions for the period 2005 to 2008, a period where the sector reached its peak in terms of growth in gross loan portfolio. The study determines the firm-wise technical efficiencies for the period of study. In addition, it also estimates the amount of potential conservation in input resources that would be feasible if the microfinance institutions can eliminate their technical inefficiencies and thereby operate on the efficient frontier.

## JEL CODES

O1, C1, Y4

## KEYWORDS

Microfinance, Technical efficiency, Productivity.

## 1. INTRODUCTION

Commerce in the 21<sup>st</sup> century is very different from what was practiced earlier. The rapid growth of technology has aided globalization tremendously. Earlier, in the absence of technology commerce had a wholly different and a much smaller dimension than the one that we are faced with today. In such a situation the distribution of wealth was more equitable. When nations grew post industrial revolution, not all of them grew equally. Although globalisation and information technology has dissolved borders and barriers, it did not include all in the growth wagon. With situations as they prevail, the poor have been extremely isolated and cut off from the mainstream financial services that drive the global economy today (Sachs, 2005).

The commercial banking sector does not consider the poor bankable owing mainly to their inability to meet the eligibility criteria, including collateral. Thus, the poor people<sup>1</sup> in most countries virtually have had no access to formal financial services (Littlefield et.al, 2003). In such a scenario the poor turn to informal financial alternatives such as family loans, moneylenders, and traders. These are usually limited in amount and are often extended under very rigid conditions and at very high interest rates. Microfinance has come in as a solution to this problem by facilitating the provision of sustainable economic opportunities at grass root levels by extending the required financial capital at competitive rates. Robinson (1998) defines Microfinance as follows:

'Microfinance refers to small-scale financial services, for both credits and deposits — that are provided to people who farm or fish or herd; operate small or microenterprises where goods are produced, recycled, repaired, or traded; provide services; work for wages or commissions; gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and local groups in developing countries, in both rural and urban areas'.

## 2. REVIEW OF LITERATURE

### 2.1 CREDIT: DEMAND VERSUS SUPPLY

Ananth (2004), observe that against an estimated annual credit demand of \$3 to \$9 billion in India, the normal financial services are able to provide only \$200 to \$300 million. Less than 20% of the rural populations have a bank account and only about 30,000 bank branches cater to the needs of 6,00,000 villages in the country. All this go to show the gap that exists between the demand and supply of credit in the nation. A Deutsche Bank Research Report (2007)<sup>2</sup> brings out that in spite of microfinance investments increasingly attracting institutional and individual investors due to their double bottom line (i.e., while they allow investors to adopt a social investment strategy geared toward poverty alleviation, they also offer an attractive risk-return profile) it is unable to serve more than a fraction of today's global sector demand of 1 billion micro-borrowers. This situation translates into an immense funding gap estimated at around \$250 billion.

### 2.2 THE RURAL INDIAN CREDIT SCENARIO

Rural microcredit in India is not a recent phenomenon. The Regional Rural Banks (RRB) were setup in the mid 70s to replace the cooperative banks which were dominated by rural wealthy people. These banks were given a clear mandate to lend to the poor. In the initial decades the focus of the RRBs was on outreach even at the expense of prudent lending practices. This consequently lead to high default rates and accumulated losses exceeding Rs.3000 crores in 1999 (Bhatt and Thorat, 2001). Subsequent reforms relaxed the ceiling on interest rates that were imposed on these RRBs and the financial situation has improved since then with over 80% of the RRBs now being profitable. What started as just micro-credit disbursement has now grown to include micro-savings, micro-insurance, etc., with the emergence of Microfinance institutions, both private and NGO. These have emerged over the past few decades as important tools for economic development and the empowerment of the poor.

Over its entire lifetime, the formal rural banking system in India has struggled to balance the dual objectives of outreach and financial performance. A post-reform shift in focus has improved financial performance but only at the expense of the outreach. With their focus shifted to financial performance, the banks are naturally shifting their portfolio to the low cost segment. So the challenge to improve on both the fronts of financial sustainability and outreach rests on the ability of Microfinance institutions to reduce costs and improve the efficiency of their operations. This shifts the focus to productive efficiency. If microfinance institutions are to survive and be sustainable, productive efficiency is imperative.

<sup>1</sup> As per World Bank's standards, poor households are defined as those who fall under the international poverty line of income less than 1 USD per capita per day, measured at purchasing power parity. Maxell (1999) observes that poor households generally fall under the category of income/consumption poverty, social exclusion, lack of capability and functioning, vulnerability, livelihood unsustainability, and relative deprivation.

<sup>2</sup> Microfinance: An emerging investment opportunity- Deutsche Bank Research, December 2007.

### 2.3 PRODUCTIVITY AND TECHNICAL EFFICIENCY

Productivity of a firm is the ratio of output(s) that it produces to the input(s) that it uses,

Productivity = outputs/inputs

This is the case where the process of production involves single input and a single output. However, in most cases firms employ multiple inputs to produce one or more outputs. In such a scenario, measure of productivity should take into account all of these outputs and inputs. This measure of productivity is referred to as Total Factor Productivity (TFP).

The question of measuring the productive efficiency of an institution or an industry is of concern from both an economic and business stand point. If economic planning concerns itself with a particular industry, then it is important to know how far a given industry can be expected to increase its output by increasing its efficiency without absorbing further resources. That is, 'productive efficiency' indicates the extent to which all the input factors are utilized and processed such that they produce the maximum output possible for the given set of inputs.

However, conventional methods of measuring productivity by estimating average output produced relative to the inputs have a serious drawback. While comparing the productivity among firms, it is important to note that not all firms succeed in maximizing the outputs for a given set of inputs and minimizing the inputs without compromising the output. That is, not all firms are technically efficient. **Kumbhakar and Lovell (2000)** explain that technical efficiency although synonymous with Productive efficiency, considers frontiers rather than functions, in the treatment of efficiency. That is, while a function merely computes the ratio of net output to inputs, a frontier explains how much of contraction of inputs is possible for a given output and also how much expansion of output is possible for a given set of inputs. That is, a technically efficient frontier firm is the one which succeeds in converting a minimum set of inputs to maximum output(s). A firm that does this is considered to operate on the efficient frontier while the others operate below the frontier and their technical efficiencies are correspondingly lesser.

### 2.4 EFFICIENCY STUDIES OF MICROFINANCE

There are very few studies that have been carried out to estimate the operating efficiencies Microfinance institutions. A study by **Farrington (2000)** uses accounting variables like administrative expense ratio, number of loans per loan officer and loan officers to total staff, portfolio size, loan size, lending methodology, source of funds and salary structures as the efficiency drivers and hence as measures of efficiency. Another study by **Lafourcade et al (2005)** measures the efficiency using cost per borrower and cost per saver as indicators of efficiency. They found that African MFIs incur highest cost per borrower but have the lowest cost per saver. However, both of these studies use only statistical comparisons which have their limitations in productivity measurement.

**Guiterrez et al (2006)** have applied DEA to measure the efficiency of 30 Latin American MFIs and subsequently have a multivariate analysis of the DEA results. They identified W-Popayan and Findesa as the most efficient institutions among the group of firms considered.

**Varman and Samyukta (2007)** use the two stage SFA method suggested by Battese and Coelli (1992) to estimate the efficiencies of Microfinance institutions in India. They observe that Satin Credit Care and IASC are the most efficient institutions. However, in the two stage model there is an inconsistency with regard to the assumptions about the distributions of  $v_i$  and  $u_i$  used in the stochastic model, i.e., in the first stage while determining the technical inefficiencies, it is assumed that  $u_i$  is an independent normal distribution. However, in the second stage, a regression analysis is done to find out the determinants that contribute to the inefficiencies, which is fundamentally a correlation test that defies the assumption of independence made in the first stage.

A study by **Hassan and Tuft (2001)** using Stochastic frontier analysis found that Grameen Bank's branches staffed by the female employees operated more efficiently than their counterparts with male employees.

**Michael et al (2009)** use DEA to compare the efficiencies on an international basis with focus on whether the regulation or status of the MFI (NGO, NBF, Bank etc) affect the efficient operation of Microfinance institutions. They find that strong outreach and preservation of low operating expenses help Asian MFIs to be efficient. They also find that South Asian MFIs may be more efficient than their East Asian counterparts due to the differences in their lending methodologies.

Against this background of literature on efficiency analysis of Microfinance institutions, it was found that there were no studies conducted to evaluate the efficiency of Indian MFIs during the period 2005-2008 using the single stage SFA model suggested **Battese and Coelli (1995)**, which has shown to be a highly reliable model. This model overcomes the drawback of the two stage model used in the study by **Varman and Samyukta (2007)**.

### 2.5 PURPOSE OF THE STUDY

Efficiency estimation is relevant for any industry to understand the extent to which they are able to satisfy the fundamental purpose of their existence in business, which is to enhance the economic value the business adds to the society, and in the process growing in a sustainable fashion. When it comes to the Microfinance industry, which is highly constrained for its resources and inputs, the necessity of maximizing the outputs while minimizing the input resources, becomes very critical to their financial sustainability. On this foundation of technical efficiency, directly rests the other pillars of concern like impact, interest rates, operational and administrative costs, bad debts, etc. The estimation of this measure of technical efficiency is an indirect indicator of the other performance parameters which translate into efficient output (Gross loan portfolio) with minimum inputs (capital and labor). Such a study, using a single stage Stochastic Frontier Analysis, has not been undertaken for the Indian Microfinance Industry. Hence, this study attempts to do that.

## 3. RESEARCH OBJECTIVES

An estimation of technical efficiencies of Microfinance institutions in India over the period 2005-2008 using Stochastic Frontier Analysis.

## 4. SCOPE OF THE STUDY

The study estimates only the technical efficiencies of Microfinance institutions operating in India. That is, it is a computation of the extent to which the inputs and resources are effectively used and translated into outputs. The study considers for comparison only those Microfinance institutions in India who have reported their financial data to the Microfinance Information Exchange consistently for all the four years (2005-08).

## 5. DATA SOURCE FOR THE STUDY

The data used in this study is secondary in nature and has been obtained from the official website of the Microfinance Information Exchange (MIX), [www.mixmarket.org](http://www.mixmarket.org). The Microfinance Information Exchange, Inc. (MIX) is a leading business information provider dedicated to strengthening the microfinance sector. It is a non-profit organization incorporated in June 2002. The organization's core focus is to provide objective data and analysis on microfinance providers. In doing so MIX promotes financial transparency in the industry and helps build the information infrastructure in developing countries. MIX Market seeks to develop a transparent information market to link MFIs worldwide with Investors and Donors and promote greater investment and information flows. MIX Market currently provides data on over 1400 MFIs, over 100 investors and almost 200 partners<sup>3</sup>.

## 6. INPUTS AND OUTPUT CHOSEN FOR THE STUDY

In this study, there was a need for careful choice of inputs and outputs that are selected from the data provided by MIX Market. The effectiveness of the stochastic frontier analysis depends on that of the appropriateness of the data that is supplied to it. The challenge here is to consider a financial institution in the light of a production unit, producing tangible outputs from tangible inputs. **Escuer et al (2004)** in their study of evaluating the productive efficiencies of European Union Banks using the stochastic frontier technique, present perspectives about the choice of inputs and outputs when it comes to a financial institution. Since banks operate as intermediaries with operations involving assets and liabilities, Escuer et al (2004) take loans as the representative variable for outputs, while number of employees, number of branches, deposits and physical capital are taken as inputs.

<sup>3</sup> Source : <http://www.themix.org/about-mix/about-mix> -accessed 10.03.2010.

Although Microfinance institutions function as a financial intermediary in some ways, they differ from the commercial banks and financial institutions in many other ways. The primary sources of financial inputs here are donor funds, borrowings, equity and deposits (Varman and Samyukta, 2007). These are aggregated into a single variable called 'Total Fund Input', which represents Capital and under the category of Labor, 'Number of employees' is used as a measure in productivity analysis. The primary output that Microfinance institutions produce is the loans that they give out, measured by the 'Gross Loan Portfolio'.

The variables which are not directly related to the inputs or outputs, but however may indirectly influence the operation of the firm, need to be considered as well. The stochastic model can incorporate these variables in the process of estimation of the model parameters. These are ordinal/categorical variables and the way in which they are incorporated into the data set will be subsequently explained.

This study assumes that there are four such influencing variables. The first variable considered is whether the institution is regulated or not. When a firm is regulated it needs to operate under the regulations prescribed by the Microfinance regulating authority<sup>4</sup> and hence this will influence the number people employed, capital and hence the output. The second variable captures whether the firm is a NGO or NBFC. The nature of the firm also has an indirect bearing on the way it operates, the extent of funding it gets from institutional grants etc. The third variable considered is 'Size' of the microfinance institution determined by magnitude of the gross loan portfolio. Three bands are defined based on portfolio size. Size of the microfinance institution was treated as a categorical variable with three divisions based on the size of gross loan portfolio (US\$),

- 0- 0 to 10 million
- 1- 10 to 50 million
- 2- more than 50 million

The fourth variable that is considered is the 'Age' of the institution. With maturity and experience firms are assumed to differ in their operations depending on their learning curves. Age is treated as a categorical variable with the following bands,

- 1- 0-5 years
- 2- 6-10 years
- 3- 11-15 years
- 4- 16-20 years
- 5- 21-25 years
- 6- More than 26 years

These exogenous variables that have been considered are not an exhaustive list. They have been chosen based on reasoning as to what are the common factors that could affect the functioning of a microfinance institution. Also, the choice of variables has also been limited by the availability of data.

## 7. METHODOLOGY

The computer program, FRONTIER Version 4.1c is used to estimate the maximum likelihood estimates of a subset of the stochastic frontier production function that has been explained so far. The program can accommodate panel data, time varying and invariant efficiencies, cost and production functions, half normal and truncated normal distributions and functional forms which have a dependant variable in logged or original units. However, the program cannot accommodate exponential or gamma distributions, nor can it estimate systems of equations (Coelli, 1996). The FRONTIER Version 4.1c can estimate the parameters of the stochastic frontiers in adherence to two different models proposed by Battese and Coelli.

### 7.1 MODEL: BATTESE AND COELLI (1995) SPECIFICATION

Battese and Coelli (1995) proposed a stochastic frontier models in which the inefficiency effects ( $u_i$ ) are expressed as an explicit function of a vector of firm specific variables and a random error. This model imposed allocative efficiency condition and also permitted panel data to be used. The model is as follows:

$$Y_{it} = x_{it}\beta + (V_{it} - U_{it})$$

Where,

$Y_{it}$ ,  $x_{it}$ , and  $\beta$  are as defined earlier;

The  $V_{it}$  are random variables which are assumed to be normally distributed as  $N(0, \sigma_v^2)$ , and independent of the  $U_{it}$  which are non-negative random variables which are assumed to account for technical efficiency in production and are assumed to be independently distributed as truncations at zero of the  $N(m_{it}, \sigma_u^2)$  distribution, where:

$$m_{it} = z_{it}\delta$$

where,  $z_{it}$  is a  $p \times 1$  vector of variables which may influence the efficiency of a firm; and

$\delta$  is an  $1 \times p$  vector of parameters to be estimated.

The replacement made by Battese and Corra (1977)  $\sigma_v^2$  and  $\sigma_u^2$  are replaced with  $\sigma^2 = \sigma_u^2 + \sigma_v^2$  and  $\gamma = \sigma_u^2 / (\sigma_u^2 + \sigma_v^2)$  is followed even in this model.

This model is chosen for this study. The input vector  $x_{it}$  are the 'Total Fund Input' and the 'Number of Personnel Employed'. The output  $y_{it}$  is the 'Gross Loan Portfolio'.  $z_{it}$  are the influencing variables: 'Regulation', 'NGO/NBFI', 'Size' and 'Age'. The parameters  $\beta$ ,  $\gamma$  and  $\delta$  will be estimated by the program. The two main functional transformations applied to stochastic frontier analysis are Cobb-Douglas and Transcendental logarithm. Here, the Cobb-Douglas functional transformation was preferred over the Transcendental logarithm, because of the nature of the results of estimated co-efficient.

### 7.2 EFFICIENCY PREDICTIONS

Coelli (1996) explains how the Frontier Version 4.1c computes the efficiency of individual firms from the estimated stochastic production frontiers. The measure of technical efficiency relative to the production frontier is defined as:

$$EFF_i = E(Y_i^* | U_i, X_i) / E(Y_i^* | U_i=0, X_i)$$

Where,

$Y_i^*$  is the production of the  $i$ -th firm which is directly represented by  $Y_i$  when the dependent variable is in original units and will be equal to  $\exp(Y_i)$  when the dependent variable is in logs. When  $EFF_i$  represents a production frontier, it will take a value between zero and one.

The production efficiency with a logged dependent variable is given by  $\exp(-U_i)$  and when the dependent variable is not logged, it is defined by  $(x_i\beta - U_i) / (x_i\beta)$ . In this study, the dependent variable is logged and hence the former expression is used to denote the production efficiency. These expressions of  $EFF_i$  rely upon the value of the unobservable  $U_i$  that is being predicted.

## 8. RESULTS AND ANALYSIS

### 8.1 OBSERVATIONS FROM THE STOCHASTIC FRONTIER ANALYSIS

The outputs from the computer application Frontier 4.1c are tabulated in the following section. The outputs obtained by applying a Cobb-Douglas functional transformation on the input vectors are tabulated in Table.11 and those obtained by applying a Transcendental logarithm are tabulated in Table.12. The appropriateness of both the functional forms will be subsequently examined.

Coelli. et.al. (1998) suggest the verification of the existence of technical inefficiency in the model, in the case of a cross-sectional analysis as well as in the case of panel data. For this, the null hypothesis  $\gamma = 0$  is compared with the alternative  $\gamma > 0$ , where:

$$\gamma = \sigma^2 / \sigma_s^2 \text{ and}$$

$$\sigma_s^2 = \sigma^2 + \sigma_v^2$$

$\sigma^2$  is representative of technical inefficiencies and  $\sigma_v^2$  represents inefficiencies due to random errors. The Null hypothesis states that there is no technical inefficiency. The value of  $\gamma$  in Table.1 is 0.60 with an associated t-statistic of 4.55%. Therefore, the null hypothesis is rejected at 5% level of significance (i.e., 95%

<sup>4</sup> SHGs dealt by banks and NBFCs are regulated by the RBI. Trusts, societies, non-profit companies and co-operatives are not regulated.

confidence level). Therefore, the model indicates the existence of technical inefficiencies apart from random errors and that the measures of the stochastic frontiers are indicative of it.

Secondly, the production function is estimated considering that  $u_i$  follows a truncated normal distribution  $N(\mu, \sigma^2)$ . This hypothesis can be validated by referring to the value of  $\mu$  estimated by the model. The Null hypothesis is that  $\mu = 0$ . That is, if the null hypothesis is true, it is inappropriate to assume a truncated normal distribution for the technical inefficiency term  $u_i$ . The value of  $\mu$  in Table.1 is 1.93 with an associated t-statistic of 5.26%. Therefore, the Null hypothesis is rejected at 10% level of significance (i.e., at 90% confidence level) and thus it is inferred that it is reasonable to assume a truncated normal distribution for the technical inefficiency term.

The  $\beta$  coefficients obtained by applying the Cobb-Douglas functional transformation are tabulated below. The values of  $\beta_0$ ,  $\beta_1$ , and  $\beta_2$  are 10.25, 0.10 and 0.78. The signs of these coefficients are all positive and the values are also significant by looking at the standard errors and t-statistics.  $\beta_1$  and  $\beta_2$  are coefficients associated with fund input and personnel employed respectively. It is consistent with economic fundamentals that the signs of these coefficients are positive, indicating that capital and labor have a positive correlation to output. It is on this ground that the transcendental logarithm transformation on the input vectors is rejected. From Table.2 it can be observed that the values of  $\gamma$  and  $\mu$  are consistent with those observed using the Cobb-Douglas transformation. However, the negative sign on  $\beta_1$  coefficient indicates that capital has a negative correlation to output, which counters the economic fundamentals. Because of this inconsistency, Cobb-Douglas transformation is preferred over the Transcendental logarithm for functional transformation of input vectors.

TABLE 1: COBB DOUGLAS FUNCTIONAL TRANSFORMATION - MAXIMUM LIKELIHOOD ESTIMATES - MODEL PARAMETERS USING COBB-DOUGLAS FUNCTION AND WITH  $z = 4$

Parameters	Coefficient	Standard Error	t-statistic
$\beta_0$	10.25	4.44E-01	2.31E+01
$\beta_1$	0.10	2.52E-02	4.14E+00
$\beta_2$	0.78	5.60E-02	1.40E+01
$\mu$	1.93	3.66E-01	5.26E+00
delta 1	-0.04	7.23E-01	-6.10E-02
delta 2	0.71	7.40E-01	9.61E-01
delta 3	-0.92	3.12E-01	-2.95E+00
Delta 4	-1.03	2.51E-01	-4.12E+00
$\sigma^2$	0.63	1.80E-01	3.52E+00
$\Gamma$	0.60	1.32E-01	4.55E+00

Log likelihood function = -0.13340334E+03

TABLE 2: TRANSCENDENTAL LOGARITHM FUNCTIONAL TRANSFORMATION - MAXIMUM LIKELIHOOD ESTIMATES - MODEL PARAMETERS USING TRANSLOG FUNCTION & WITH  $z = 4$

Parameters	Coefficient	Standard Error	t-statistic
$\beta_0$	10.83	9.17E-01	1.18E+01
$\beta_1$	-0.08	1.04E-01	-7.34E-01
$\beta_2$	0.45	2.85E-01	1.57E+00
$\beta_3$	0.03	3.90E-03	7.79E+00
$\beta_4$	0.11	4.23E-02	2.65E+00
$\beta_5$	-0.08	2.25E-02	-3.60E+00
$\mu$	1.49	4.90E-01	3.05E+00
delta 1	0.33	7.15E-01	4.68E-01
delta 2	-1.01	3.60E-01	-2.80E+00
delta 3	0.37	7.05E-01	5.24E-01
$\sigma^2$	-1.02	3.23E-01	-3.16E+00
$\Gamma$	0.61	1.37E-01	4.44E+00

Log likelihood function = -0.10084946E+03

Thus, the parameters in Table 1 obtained from the stochastic frontier analysis by applying a Cobb-Douglas functional transformation on input vectors, can be fitted into an equation which describes the fundamental stochastic model proposed in the earlier chapters.

$$\ln(\text{Gross loan portfolio}_{it}) = \beta_0 + \beta_1(\ln(\text{Total fund input}_{it})) + \beta_2(\ln(\text{Personnel employed})) +$$

$$+ v_{it} - u_{it}$$

$$\text{i.e., } \ln y_{it} = 10.25 + 0.10 \ln(\text{Total fund input}) + 0.78 \ln(\text{Personnel employed}) + v_{it} - u_{it}$$

## 8.2 EFFICIENCY ESTIMATES

Aigner and Chu (1968) extending the work of Farrel posit that for a given input vector  $x_i$ , the ratio of the observed output of the  $i$ -th firm, relative to the potential output defined by the estimated frontier, is the estimate of technical efficiency of the  $i$ -th firm:

$$(a) \quad TE_i = y_i / \exp(F(x_i; \beta) + v_i) = \exp(-u_i).$$

The stochastic model was defined as,

$$(b) \quad \ln(y_i) = F(x_i; \beta) + v_i - u_i$$

From (b) it follows that,

$$y_i = \exp(F(x_i; \beta) + v_i - u_i)$$

$$(c) \quad y_i = \exp(F(x_i; \beta) + v_i) / \exp(u_i)$$

Substituting (c) in (a) yields,

$$(d) \quad TE_i = \exp(-u_i)$$

The output parameters of the Frontier 4.1c are fitted into this equation and the Technical efficiencies of the individual firms are calculated. The mean efficiency scores are calculated as arithmetic mean of the scores obtained by individual firms from 2005 to 2008. The results are tabulated in Table.3 and 4 below

TABLE 3: EFFICIENCY SCORES OF MICROFINANCE INSTITUTIONS FOR THE YEARS 2005-08

Mfi.Id	Mfi Name	2008		2007		2006		2005	
		Rank	%	Rank	%	Rank	%	Rank	%
29	SKDRDP	1	93.47%	1	93.72%	1	93.49%	2	92.43%
26	Sewa bank	2	92.62%	2	92.05%	2	91.80%	1	94.64%
21	RASS	3	90.15%	3	89.84%	6	86.27%	8	80.91%
28	SHARE	4	89.52%	4	89.80%	3	88.96%	3	88.37%
10	BSS	5	87.86%	5	88.53%	4	87.09%	7	82.85%
36	VFS	6	86.86%	7	86.70%	10	84.50%	5	85.73%
30	SKS	7	85.94%	8	86.07%	11	83.53%	10	80.81%
32	Spandana	8	85.47%	6	87.68%	7	86.14%	6	85.66%
3	AMMACT	9	84.51%	10	84.67%	19	73.38%	13	77.82%
23	Sanghamithra	10	82.20%	9	85.19%	13	81.83%	11	79.51%
5	AWS	11	82.00%	11	84.52%	5	86.30%	21	71.33%
15	GU	12	80.44%	13	82.77%	15	79.59%	16	75.04%
14	GFSPL	13	80.15%	18	78.09%	22	71.55%	25	64.32%
2	AML	14	79.17%	14	80.39%	16	78.57%	15	77.40%
8	BFL	15	75.45%	17	78.77%	8	85.88%	4	87.86%
16	KBSLAB	16	74.80%	21	75.21%	25	68.33%	18	73.76%
17	KRUSHI	17	74.33%	16	79.25%	12	82.99%	14	77.66%
12	CRSA	18	74.02%	23	71.44%	29	61.17%	28	53.97%
13	ESAF	19	73.65%	12	83.03%	9	85.70%	12	78.00%
6	Bandhan	20	73.08%	20	75.54%	26	66.66%	27	57.28%
31	SMSS	21	72.74%	25	70.61%	23	70.46%	24	64.55%
7	BASIX	22	72.63%	22	73.97%	21	73.16%	19	73.73%
11	Cashpor MC	23	72.61%	15	80.22%	17	75.08%	20	71.50%
25	SCNL	24	70.45%	24	70.77%	18	74.06%	17	74.23%
34	SWAWS	25	69.72%	29	64.14%	28	61.77%	23	65.58%
9	BISWA	26	69.64%	28	66.80%	14	80.11%	9	80.83%
22	RGVN	27	65.69%	26	68.77%	31	57.17%	31	50.44%
24	Sarvodaya Nano Finance	28	64.18%	27	67.74%	27	62.80%	26	58.53%
20	NBJK	29	56.83%	30	61.70%	30	58.40%	29	52.26%
35	Ujjivan	30	54.95%	32	48.20%	34	34.57%	36	7.09%
18	Mahasamam	31	51.67%	19	76.81%	20	73.18%	32	50.24%
19	MFI	32	49.69%	34	45.11%	24	69.65%	22	69.18%
33	SU	33	46.18%	33	45.41%	33	49.01%	33	43.53%
1	ABCRDM	34	25.73%	35	27.04%	35	34.50%	34	29.59%
4	Asomi	35	22.34%	31	50.66%	32	51.71%	30	52.26%
27	SFPL	36	18.65%	36	13.04%	36	10.62%	35	12.20%

TABLE 4 : MEAN OUTPUT AND INPUT VARIABLES OF TOP FIVE EFFICIENT FIRMS

Mfi Name	Mean Output (US\$)	Mean fund(US\$)	Mean Personnel
SKDRDP	64,597,474	76,020,428	1708
Sewa bank	7,421,124	7,924,040	184
SHARE	129,063,648	126,540,460	3025
RASS	5,811,139	6,175,571	91
BSS	56,141,133	75,951,002	2354

FIGURE 1: MEAN EFFICIENCY TREND OF THE SECTOR

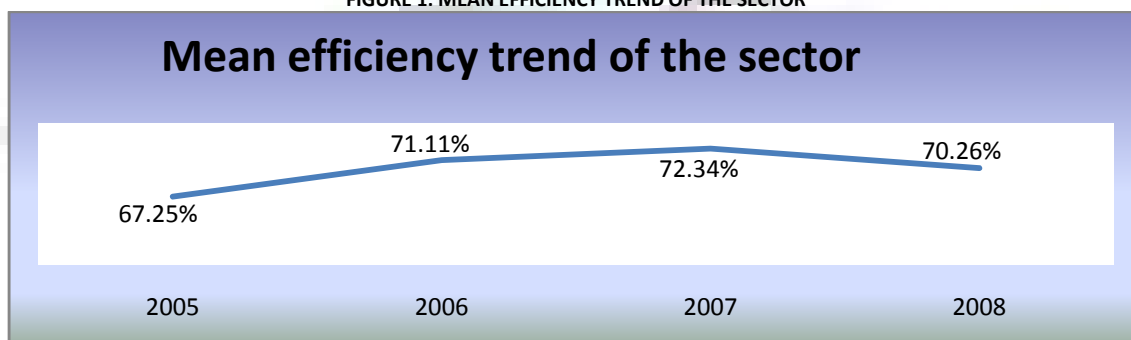


Figure. 1 depicts the trend in mean of efficiencies of all the 36 microfinance institutions computed for each of the years from 2005 to 2008. The trend is indicative of the overall performance of the microfinance sector in India with reference to technical efficiency. It can be observed that the efficiency level has grown consistently from 2005 till 2007 and have dipped in 2008.

### 8.3 OBSERVATIONS BASED ON MEAN EFFICIENCY SCORES

The mean efficiency scores is obtained as a simple arithmetic mean of the individual efficiencies of each of the 36 microfinance institutions in India, during the period of study from 2005 to 2008. Since technical efficiency is calculated based on frontiers it explains how much of contraction of inputs is possible for a given output and also how much expansion of output is possible for a given set of inputs. That is, a technically efficient frontier firm is the one which succeeds in converting a minimum set of inputs to maximum output(s). A firm that does this is considered to operate on the efficient frontier while the others operate below the frontier and their technical efficiencies are correspondingly lesser.

The ranking done based on these scores reveal that SKDRDP (Shree Kshethra Dharmasthala Rural Development Project) is the most technically efficient firm with efficiency scores of 92.43%, 93.49%, 93.72% and 93.47% from 2005 to 2008, respectively. Its mean efficiency score is 93.28%. A mean efficiency score of 93.28% means that if SKDRDP were to operate at the frontier instead of at its current location, 93.28% of its input resources currently being used would be necessary to produce the same level of output. The converse of an efficiency score of 93.28% is that, the inefficiency level is 6.72% (100% - 93.28%). This means that SKDRDP would require 6.72% more input resources to produce the same level of output as that would be produced if it were to operate on the efficient frontier. In absolute terms (Refer to Table.18), this means that if SKDRDP were to operate on the efficient frontier it can achieve a average gross loan portfolio of \$64,597,474 with 93.28% of its current fund input and personnel employed. That is, it can achieve the same output with \$70,911,855 of fund input as against \$76,020,428 and also by employing only 1593 employees instead of 1708.

The second most technically efficient microfinance institution in India is Sewa Bank with efficiency scores of 94.64%, 91.80%, 92.05%, 92.62% respectively from 2005 to 2008. Its mean efficiency score is 92.78%. Along the same lines, in absolute terms, this means that if Sewa bank were to operate on the efficient frontier it can achieve a average gross loan portfolio of \$7,421,124 with 92.78% of its current fund input and personnel employed. That is, it can achieve the same output with \$7,351,925 of fund input as against \$7,924,040 and also by employing only 170 employees instead of 184.

The third in rank among most technically efficient microfinance institutions is SHARE Microfinance with efficiency scores of 88.37%, 88.96%, 89.80%, and 89.52% respectively from 2005 to 2008. The mean efficiency score is 89.16%. In absolute terms, this means that if SHARE were to operate on the efficient frontier it can achieve a average gross loan portfolio of \$129,063,648 with 89.16% of its current fund input and personnel employed. That is, it can achieve the same output with \$112,823,474 of fund input as against \$126,540,460 and also by employing only 2697 employees instead of 3025.

The fourth in rank among most technically efficient microfinance institutions in India during the period 2005 to 2008 is RASS (Rashtriya Seva Samithi) with efficiency scores of 80.91%, 86.27%, 89.84% and 90.15% respectively from 2005 to 2008. The mean efficiency score is 86.79%. In absolute terms, this means that if RASS were to operate on the efficient frontier it can achieve a average gross loan portfolio of \$5,811,139 with 86.79% of its current fund input and personnel employed. That is, it can achieve the same output with \$5,359,778 of fund input as against \$6,175,571 and also by employing only 79 employees instead of 91.

BSS is the fifth most technically efficient Microfinance institution in India with efficiency scores of 82.85%, 87.09%, 88.53% and 87.86% respectively for the period from 2005 to 2009. The mean efficiency score is 86.59%. In absolute terms, this means that if BSS were to operate on the efficient frontier it can achieve a average gross loan portfolio of \$56,141,133 with 86.59% of its current fund input and personnel employed. That is, it can achieve the same output with \$65,765,972 of fund input as against \$75,951,002 and also by employing only 2038 employees instead of 2354.

## 9. SUMMARY AND CONCLUSIONS

This study on estimation of technical efficiencies of microfinance institutions in India using a stochastic frontier analysis has determined a number of useful results. By using the financial data of microfinance institutions as reported by the institutions themselves to the Microfinance information exchange, the relevant input, output, and exogenous variables are identified. 'Total fund input' constituted by the sum of borrowings, equity, donor funds and deposits was treated as the first input factor. The 'Number of Personnel' was considered as the second input factor.

On identifying all the relevant variables, the appropriate functional form to be used for the stochastic frontier analysis was decided. Cobb-Douglas transformation was chosen over the Transcendental logarithm owing the observed inconsistency in the estimated stochastic parameters in the latter functional form. Subsequently, the model was adapted to fit the context of the present study. From the estimated parameters obtained from the output of Frontier 4.1 c, it was found that that  $\gamma = 0.60$  with an associated t-statistic of 4.55%. This result confirmed the presence of technical inefficiencies and the value of  $\mu = 1.93$  and a t-statistic of 5.26% validated the assumption of a truncated normal distribution for the technical inefficiency term used in the stochastic frontier analysis. Further, by applying the estimated parameters the technical efficiencies were calculated at the individual firm level for all the 36 firms for the period from 2005 to 2008. Firms were ranked based on their efficiencies in each year. Further, the mean efficiencies were computed and the firms were ranked based on it. It has also brought out the extent to which these institutions can achieve a reduction in the input resources by operating on the efficient frontier.

## 10. LIMITATIONS OF THE STUDY

This study being purely quantitative has its own limitations. Especially, when it comes to a field of study like Microfinance, which involves a lot of human element and subtle factors like trust, belief, self-confidence, motivation, commitment, etc., which indirectly influence the way both the lenders and the borrowers behave and operate, a purely quantitative study is limited in its ability to measure and incorporate these factors. For instance, a few highly motivated field workers can play a pivotal role in counseling borrowers who are faced with rough business cycles. By providing technical and moral support they can enable them to turn around their losses and eventually help them to repay their loans and graduate to larger loans. Such actions surely improve the technical efficiency of the firm in the long-run, which cannot be captured by this study. Although the measure of technical efficiency indirectly points to the general effectiveness of the institution and its impact in the area where it operates, it does not explicitly measure these parameters.

## 11. SCOPE FOR FURTHER WORK

This study can be extended to include microfinance institutions across the globe. However, the challenge that would come up while dealing with such comparisons is that of existence of different external influencing variables. For instance, depending on the country of operation, its geography, entrepreneurial abilities of people, autonomy for women based on cultures, and the political and legal regulations, etc. vary, and hence it is required to account for all these constraints in the stochastic frontier analysis. Another alternative to this would be to identify developing countries that have a lot of similarities in terms of their operating conditions and compare the efficiencies of microfinance institutions across these countries. Such a study will throw light on whether microfinance sector in a particular country is highly efficient in comparison to others. A meaningful extension to this quantitative study would be to complement it with a qualitative research on the identified efficient institutions. It would be useful to select a few top ranked institutions and also two institutions which are at the bottom in terms of technical efficiency, and conduct an explorative case study to understand the reasons for their performances. Another aspect would be to consider the impact that these institutions have on the clients. It would be beneficial to the sector if there's a study to understand whether there is a positive correlation between the technical efficiency of microfinance institutions and the perceived impact it has on the clients.

## 12. REFERENCES

1. Aigner, D.J. and Chu, S.F. (1968), "On Estimating the Industry Production Function", American Economic Review, Vol.58, pp. 826-839
2. Ananth, B. (2004), "A Blueprint for the Delivery of Comprehensive Financial Services to the Poor in India", Centre for Micro Finance Working Paper Series.
3. Battese, G.E. and Coelli, T.J. (1995), "A Model for Technical Inefficiency Effects in a Stochastic Frontier Production Function for Panel Data", Empirical Economics, Vol.20, pp. 325-332.
4. Battese, G.E. and Corra, G.S. (1977), "Estimation of a Production Frontier Model: With application to the pastoral zone of Eastern Australia", Australian Journal of Agricultural Economics, Vol.21, pp.169-179.
5. Bhatt, N and Thorat, Y.S.P. (2001), "India's Regional Rural Banks: The Institutional Dimension of Reforms", Journal of Microfinance, Vol. 3, No.1
6. Coelli, J. (1996), "A Guide to FRONTIER Version 4.1: A Computer Program for Stochastic Frontier Production and Cost Function Estimation", CEPA Working Paper, 96/07
7. Coelli, T., Rao, P. and Battese, G. (1998), An Introduction to Efficiency and Productivity Analysis, Kluwer Academic Publishers, Dordrecht.
8. Farrington, T. (2000), "Efficiency in Microfinance institutes", Microbanking Bulletin, pp.20-23.
9. Gutierrez Nieto, B., Serrano Cinca, C and Molinero, C.M. (2006), "Microfinance institutions and efficiency.OMEGA", International Journal of Management Science, Vol.35, No.2, pp.131-142.

10. Hassan, M.K. and Tufte, D.R. (2001), "The X-efficiency of a group based lending institution: the case of Grameen Bank", World Development, Vol.29, pp.1071-1082.
11. Kumbhakar, S.C. and Lovell, C.A.K. (2000), Stochastic Frontier Analysis, Cambridge University Press, pp.1-11
12. Lafourcade, A., Isem, J., Mwangi, P and Brown, M. (2005), "Overview of the outreach and financial performance of microfinance institutions on Africa", [www.mixmarket.org](http://www.mixmarket.org)
13. Littlefield, E., Morduch, J and Hashemi, S. (2003), "Is Microfinance an Effective Strategy to Reach the Millennium Development Goals?", CGAP.
14. Maxwell, S. (1999), "The meaning and measurement of Poverty", Overseas Development Institute Poverty Briefing 3, pp.1-6
15. Michael, S and Mamiza, H. (2009), "Efficiency of Microfinance Institutions: A Data Envelopment Analysis", Asia-Pacific Financial markets.
16. Robinson, S. (1998), "Microfinance: the Paradigm Shift From credit Delivery to Sustainable Financial Intermediation", Strategic Issues in Microfinance, Ashgate Publishing: Aldershot.
17. Sachs, J. (2005), The End of Poverty, Penguin Books, pp.26-30.
18. Varman, P and Samyukta, R. (2007), "Microfinance Institutions and Technical Efficiency in India", IFMR, pp.346-348.



**EFFECTIVE RETENTION STRATEGIES IN WORKING ENVIRONMENT**

**C. KAVITHA**  
**ASST. PROFESSOR**

**BHAKTAVATSALAM MEMORIAL COLLEGE FOR WOMEN**  
**CHENNAI**

**ABSTRACT**

*Retention management is a highly topical subject and an important dilemma many organizations might face in the future, if not facing it already. We believe that the leader plays a key role in employee retention and retention management. The concept of retention management can both have an arrow, and a broader significance. The study aims to establish the procedure leaders apply to retain employees. The purpose is to compare the qualitative study, findings from my presentation. The intention of investigating is to make the information from the theories more valid, and also the interest in how retention management works in practice. In the result Leaders and their skill in creating a culture of retention, has becoming a key in why people stay and what usually drives them away from a company. The leader has become the main factor in what motivates people's decision to stay or leave. For organizations to keep its key employees their number one priority should be to look at their management, because people leave managers and not companies. Characteristics in a leader that are of importance, as the leader plays a key role in retention management is: trust builder, esteem builder, communicator, talent developer and coach, and talent finder. The leader's relation to the employees plays a central role in retaining employees.*

**KEYWORDS**

retention strategies, hrm.

**INTRODUCTION**

Employee retention is a process in which the employees are encouraged to remain with the organization for the maximum period of time or until the completion of the project. Employee retention is beneficial for the organization as well as the employee. Employees today are different. They are not the ones who don't have good opportunities in hand. As soon as they feel dissatisfied with the current employer or the job, they switch over to the next job. It is the responsibility of the employer to retain their best employees. If they don't, they would be left with no good employees. A good employer should know how to attract and retain its employees.

Most employees feel that they are worth more than they are actually paid. There is a natural disparity between what people think they should be paid and what organizations spend in compensation. When the difference becomes too great and another opportunity occurs, turnover can result. Pay is defined as the wages, salary, or compensation given to an employee in exchange for services the employee performs for the organization. Pay is more than "dollars and cents;" it also acknowledges the worth and value of the human contribution. What people are paid has been shown to have a clear, reliable impact on turnover in numerous studies.

Employees comprise the most vital assets of the company. In a work place where employees are not able to use their full potential and not heard and valued, they are likely to leave because of stress and frustration. In a transparent environment while employees get a sense of achievement and belongingness from a healthy work environment, the company is benefited with a stronger, reliable work-force harboring bright new ideas for its growth.

**WORK ENVIRONMENT**

It includes efficient managers, supportive co-workers, challenging work, involvement in decision-making, clarity of work and responsibilities, and recognition. Lack or absence of such environment pushes employees to look for new opportunities. The environment should be such that the employee feels connected to the organization in every respect. Growth and Career Growth and development are the integral part of every individual's career. If an employee can not foresee his path of career development in his current organization, there are chances that he'll leave the organization as soon as he gets an opportunity.

**Work profile:** The work profile on which the employee is working should be in sync with his capabilities. The profile should not be too low or too high and development, they leave mainly because of work related stress and dissatisfactions.

More and more companies have now realized the importance of a healthy work culture and have a gamut of people management good practices for employees to have that ideal fresh work-life. Closed doors work culture can serve as a deterrent to communication and trust within employees which are potential causes for work-Related apathy and frenzy. A transparent work environment can serve as one of the primary triggers to facilitate accountability, trust, communication, responsibility, pride and so on. It is believed that in a transparent work culture employees rigorously communicate with their peers and exchange ideas and thoughts before they are finally matured in to full-blown concepts. It induces responsibility among employees and accountability towards other peers, which gradually builds up trust and pride.

**QUALITY OF WORKLIFE**

The success of any organization depends on how it attracts recruits, motivates, and retains its workforce. Organizations need to be more flexible so that they develop their talented workforce and gain their commitment. Thus, organizations are required to retain employees by addressing their work life issues. The elements that are relevant to an individual's quality of work life include the task, the physical work environment, social environment within the organization, administrative system and relationship between life on and off the job.

The basic objectives of a QWL program are improved working conditions for the employee and increase organizational effectiveness. Providing quality work life involves taking care of the following aspects:

- ❖ Occupational health care.
- ❖ The safe work environment provides the basis for the person to enjoy working.
- ❖ The work should not pose a health hazard for the person.

**WHAT MAKES EMPLOYEE LEAVE?**

Employees do not leave an organization without any significant reason. There are certain circumstances that lead to their leaving the organization. The most common reasons can be: Job is not what the employee expected to be. Sometimes the job responsibilities don't come out to be same as expected by the candidates. A candidate may be fit to do a certain type of job which matches his personality. If he is given a job which mismatches his personality, then he won't be able to perform it well and will try to find out reasons to leave the job. No growth opportunities: No or less learning and growth opportunities in the current job will make candidate's job and career stagnant. Lack of appreciation: If the work is not appreciated by the supervisor, the employee feels demotivated and loses interest in job.

Managing Employee Retention The task of managing employees can be understood as a three stage process:

1. Identify cost of employee turnover.
2. Understand why employee leave.

### 3. Implement retention strategies.

The organizations should start with identifying the employee turnover rates within a particular time period and benchmark it with the competitor organizations. This will help in assessing the whether the employee retention rates are healthy in the company. Secondly, the cost of employee turnover can be calculated. According to a survey, on an average, attrition costs companies 18 months' salary for each manager or professional who leaves, and 6 months' pay for each hourly employee who leaves. This amounts to major organizational and financial stress, considering that one out of every three employees plans to leave his or her job in the next two years. Understand why employees leave : Why employees leave often puzzles top management. Exit interviews are an ideal way of recording and analyzing the factors that have led employees to leave the organization. They allow an organization to understand the reasons for leaving and underlying issues. However employees never provide appropriate response to the asked questions. So an impartial person should be appointed with whom the employees feel comfortable in expressing their opinions .To Increase Employee Retention Companies have now realized the importance of retaining their quality workforce. Retaining quality performers contributes to productivity of the organization and increases morale among employees.

### SUGGESTIONS

- Employee should be provided with proper training.
- Employee should be appreciated for good work.
- Employee should be motivated to welcome the change. If any changes are brought in to software or any module is added then proper training should be given.

### CONCLUSION

Retention is an important concept that has been receiving considerable attention from academicians, researchers and practicing HR managers. In its essence, Retention comprises important elements such as the need or content, search and choice of strategies, goal-directed behavior, social comparison of rewards reinforcement, and performance-satisfaction. The increasing attention paid towards Retention is justified because of several reasons. Motivated employees come out with new ways of doing jobs. They are quality oriented. They are more productive. Any technology needs motivated employees to adopt it successfully.

### REFERENCES

#### BOOKS

1. Human Resource Management C.B.Memoria
2. The impact of human resource management practices on turnover, productivity, and corporate financial performance.' In Academy of Management Journal, v38
3. "The new role of service in customer retention", Managing Service Quality, Vol. 4

#### WEBSITES

4. a2zmba.blogspot.com
5. hrmba.blogspot.com
6. mbafin.blogspot.com

## A COMPARATIVE STUDY OF QUALITY OF WORK LIFE OF WOMEN EMPLOYEES WITH REFERENCE TO PRIVATE AND PUBLIC BANKS IN KANCHIPURAM DISTRICT

**A. VANITHA**  
**ASST. PROFESSOR**  
**FACULTY OF MANAGEMENT STUDIES**  
**SCSVMV UNIVERSITY**  
**ENATHUR**

### ABSTRACT

*Women employment has become the symbol of economic viability and social status in modern day society. The changes in the demographic background of women in terms of their family nature, educational background, culture and ethnic values, women in occupation has become an indispensable element. In the same way, the organizations also understand the real worth of women as an employee. But in our country, the promulgation of modernism, still prevail with traditional perception about women. The attitude of family members, society and environment still focus the women to work with in limit in terms of job, time and activities. But when the women employees started to perform, the benefits should be passed to individual, organization they belong, society they constitute and family they commit. Especially the roles of women employees in service sector are imperative in the cadres of middle and low level. In this aspect, banking is the sector where the inculcation of women employees in recent period is very high. As far as banking sector in India is concerned, women are being given centre responsibility and this is the industry like education where the employment and career opportunities are high. Women in nature have the caliber of talking and serving to people with care and empathy. The quality work life encompasses the working environment, condition, attitude, relationship, competency, support from family and society. When women feel favourable about all these attributes, their effective quality work life will have an impact on their personal, occupational, social and family aspects. All these impact conclusively leads to augment job satisfaction and effective role performance in the given job and which in turn help the banks to show consistency performance in terms of operation, growth, profit and customer retention. In this aspect, it is necessary to study the quality work life of women in banking sector in terms of comparative analysis with reference to both private and public banks. By keeping this centric issue, the researcher has framed the research paper in the title of comparative study about the quality work life of women employees in private and public banks in Kanchipuram District.*

### KEYWORDS

Bank, Banking, Quality work life, work life balance, job satisfaction, competency, profit and customer retention.

### I. INTRODUCTION

Decades have passed since the catchphrase quality of work life is the new phenomenon in the developing countries like India. In any country banking sector plays a vital role for overall development of primary and industrial sectors. The women employees in the banking company take painful effort to deliver the multiple needs of its customers. Banking industry is still emerging industry in our country, the entry of private sector and foreign banks have laid foundation stone and passed a mile journey from its start. Inadequate technology and tools brought down the development of banking habit among the people and it is the major cause for poor work life quality in banks. Historically, women's employment participation has been more in the area of service sector especially in banking includes both private and public. Females with high levels of academic qualifications are also finding it difficult to make balance between professional life and private life. It is important for every banking organization to take necessary steps to maintain a healthy balance between work and their private lives so that both employees and the company can be benefited in the long term. Work life and personal life are inter-connected and interdependent. Spending more time in office, dealing with clients and the pressures of job can affect the personal life of women, sometimes making it impossible to even complete the household chores. On the other hand, personal life can also be demanding because of having child or children or aging parents, financial problems or even problems in the life of a dear relative. It can lead to absenteeism from work, creating stress and lack of concentration at work. Work-personal life conflict occurs when the burden, obligations and responsibilities of work and family roles become incompatible for women. Obligation of one can force an individual to neglect the other. Work life balance can be understood as the balancing point on the seesaw, one side of which is work, while the other side is domestic and personal life. Emotional intelligence is required to maintain a balance between private and professional life among women especially working in the service sector like ever demand banking industry. Quality of work life has become one of the essential concerns among contemporary corporate employees and employers. Deficiency of services and benefits provided to the employee of a concern can lead detrimental results in all aspects. It is the utmost duty of the employer to provided quality of work life and quality of personal life to their employees especially women working in banking industry. Women employees are often expects various quality requirements from the work place, these can be classified into personal anticipatory, motivational insights, job freedom, work place needs, branch operations and working conditions. Kanchipuram District is the renowned landmark in the world history of tourism and pilgrimage. It is the place which is near to the known commercial head quarters of Tamilnadu namely Chennai. Kanchipuram District influx more amount of floating population in terms of tourist from domestic and foreign boundaries for pilgrimage. The world's illustrious manufacturing companies in terms of automobiles, communication and software technologies are parked its operation point in and around Kanchipuram. Due to changes in the economic background of these places, the number of public and private banks has established its penetrated operations by the way of commemorating more bank branches in this District. This has led to employment opportunities for women both in private and public banks either directly and indirectly. Since number of banking operations is high and they are targeting both individual and industrial customers, the women employees are expected play a big commitment role for the successful operation of banks out of competition and better quality service. Because of these reasons, the women employees working in both private and public banks are expected maintain emotional intelligence and manage work related pressure by keeping social and family related aspects. This can be obtained only by extending better quality work life.

### II. REVIEW OF LITERATURE

Quality of work life is a philosophy, a set of principles, which holds that people are the most important resource in the organization as they are trustworthy, responsible and capable of making valuable contribution and they should be treated with dignity and respect (Straw & Heckscher 1984). It provides healthier, satisfied and productive employees, which in turn provides efficient and profitable organization (Sadique 2003). Sirgy et al.; (2001) suggested that the key factors in quality of working life are: need satisfaction based on job requirements, need satisfaction based on work environment, need satisfaction based on supervisory behavior, need satisfaction based on ancillary programs and organizational commitment. According to the study proposed by Okpara (2004); Loscocco et al. (1991) who emphasized differences in remuneration aspects received by the employee will suddenly affect their work satisfaction and work performance. Besides the remuneration aspect, it can be noted in the literature, interpersonal communication aspects frequently are raised as one of the main factors contributing to work performance. (Che Rose, Beh, Uli and Idris, 2006) concluded that the most important predictor of quality of work life is organizational climate, followed by career achievement, career satisfaction and career balance. A high quality of work life is essential for organizations to continue, to attract and retain employees.

Rao et al. (2009) stated that remuneration is an important aspect if an organization wants to see their employees' performance according to the target accomplished. The interpersonal communication aspect such as respecting others, working together, believing others and information sharing if emphasized by the organization, will bring benefit to both sides, the employees and the employer.

### III. STATEMENT OF THE STUDY PROBLEM

Banking sector due to its present day competition have to augment their service values to retain the customers, in addition to that pace of changing working culture in banks due to the introduction of modern work technologies and innovative banking practices also demands them to contribute effective work by employees. The women employees of banking sector also undergo for work pressure and for them the working condition changes, the attribute of family related aspects, socio-economic and psychological aspects bring changes in their physical, psychological level and which in turn affect their performance. In this aspect quality work life needed to be verified by banks to make their women employees at different cadres to fit for performance, but the practices in public and private sector banks towards quality work life and work life balance related aspects changes completely, where the role of equity theory brings satisfaction and dissatisfaction among women employees. In order to study these aspects, the present study was designed and carried out by the researcher.

### IV. OBJECTIVES OF THE STUDY

1. To compare the Quality of Work Life of women employees working in private and public sector banks in Kanchipuram district.
2. To understand the demographic background of women employees working in private and public sector banks.
3. To evaluate the major factors influencing the quality of work life of women employees.
4. To study the level of satisfaction of women employees with respect to various work related attributes.
5. To understand the impact of quality of work life on work life balance.

### V. HYPOTHESES OF THE STUDY

1. There is no significant difference among women employees' opinion about the factors regarding security and growth based on designation at 5% level of significance.
2. There is no significant difference exist in the opinion of women employees about the effect of place of work and personal benefits on quality of work life based on their nature of banks at 5% level of significance.
3. There is no association among women employees about the demand of job interference in family life based on marital status of the respondents at 5% level of significance.
4. There is no significant difference among women employees' opinion about the influencing factors on quality of work life based on their designation at 5% level of significance at 5% level of significance.
5. There is no significant difference exist among women employees about the satisfaction level and its influence on quality work life based on the nature of bank at 5% level of significance.

### VI. SCOPE OF THE STUDY

The study titled "A Comparative study of Quality of Work Life of Women Employees with reference to Private and Public Banks in Kanchipuram District" aims to understand the quality of work life of women employees in public and private banks in Kanchipuram district. The study compares the quality of work life of women employees in private and public sector banks in Kanchipuram district. It also identifies the demographic background of women employees working in private and public sector banks. It evaluates the factors influencing the quality of work life of women employees. It focuses on the level of satisfaction of women employees with respect to various work related attributes and also to know the impact of quality of work life on work life balance.

### VII. RESEARCH METHODOLOGY

Item	Description
Research Design	Descriptive in nature (comparative)
Type of Population	Women employees working in Public and Private Banks in Kanchipuram District
Population Source List	Obtained from the various Public and private Banks in Kanchipuram District
Sample Source	Derived from the Population source of Private and Public banks in Kanchipuram district
Sampling Unit	Women employees working in the cadre of manager, officer, assistant and supporting staff level in Public and Private banks in Kanchipuram district
Sampling Method	Multistage sampling. The entire banks in Kanchipuram district were divided into public and private banks based on the method of cluster and from every bank the sample was drawn through stratified random basis in a disproportionate method
Sample Size	Manager-30 Officer-50 Assistant-66 Supporting Staff-14
Sampling Plan	Private – 70 Public – 90
Sources of Data	Both Primary and Secondary Data
Source of Primary Data	Obtained from the respondents of Women employees from Public and Private banks through structured questionnaire with interview schedule
Sources of Secondary Data	Gathered from the previous studies, government related gazette, RBI bulletin and periodicals
Nature of Questionnaire	A structured questionnaire with suitable scaling
Types of Questions	Open ended, closed ended, itemized ranking and Likert scale
Pre testing	The questionnaire was pre tested for its validity and reliability among the selected respondents, opinion leaders from the Banks. Based on their opinion some of the modifications were made and restructured questionnaire was used for the survey purpose
Testing of validity	Was done to check the content, criteria validity
Testing of Reliability	Cronbach alpha value (0.7723 or 77%)
Analytical tools Used	Cross tables, Chi-square, and Analysis of Variance
Other analytical tools	Percentage and Cross tables

### VIII. LIMITATIONS OF THE STUDY

1. The study was carried out only with selected private and public banks in service sector
2. The study was carried out only at Kanchipuram district of Tamilnadu
3. The women employees working in selected private and public banks were considered as the study population
4. The population source list was constructed based on the information gathered from the concern source list
5. The information given by respondents based on their opinion during the time of study and that may not be generalized as the base for future study relevant to this topic.

## IX. ANALYSIS AND INTERPRETATION

TABLE 1.0: SOCIO ECONOMIC PROFILE OF WOMEN EMPLOYEES IN PRIVATE AND PUBLIC SECTOR BANKS IN KANCHIPURAM DISTRICT

S.No	Socio- EconomicProfile	Attributes	Number of Respondents	Percentage to Total
1	Age	<30 years	12	7.5
		31-40	46	28.8
		41-50	48	30.0
		above 50	54	33.8
2	Educational Qualification	SSLC	32	20.0
		HSC	40	25.0
		DIPLOMA	10	6.3
		UG	24	15.0
		PG	28	17.5
		Others	26	16.3
3	Marital status	Unmarried	26	16.3
		Married	134	83.8
4	Total experience	0-5 yrs	26	16.3
		6-10 yrs	20	12.5
		11-15 yrs	36	22.5
		Above 15 yrs	78	48.8
5	Experience in Bank	0-5 yrs	36	22.5
		6-10 yrs	26	16.3
		11-15 yrs	30	18.8
		Above 15 yrs	68	42.5
6	Monthly Income	Below Rs.10000	28	17.5
		Rs.10001-Rs.20000	72	45.0
		Rs20001-Rs.30000	32	20.0
		Above 30000	28	17.5
7	Nature of Bank	Public	90	56.3
		Private	70	43.8
8	Designation	Manager	30	18.8
		Officer level	50	31.3
		Assistant	66	41.3
		Supporting staff	14	8.8

Source: Primary Data

Table 1.0 highlights the socio economic profile of women employees in private and public sector banks in Kanchipuram District. Regarding the age composition from the table it is reveal that 33.8 percent are above the age group of 50 and 30 percent between 41 to 50 years. 25 percent of employees in banking sector have more than HSC qualification and 32.5 percent have both under and post graduational background. Regarding the martial status 83.8 percent of respondents are married. 48.8 percent of women employees in private and public banks in Kanchipuram District have more than 15 years of experience and 42.5 percent have more than 15 years experience exclusively in banking sector. 45 percent of women employees get the monthly income between 10001 to 20000 and 17.5 percent get more than 30000 monthly income. Regarding the category of women employees occupation in banking sector, 56.3 percent belong to public sector bank and 43.8 percent belong to private banks in Kanchipuram District. The designations occupied by women employees in private and public sector banks in the selected study place 72.6 percent in bank office and assistant, 18.8 percent in managerial level and 8.8 percent in supporting staff level.

TABLE 2.0: THE NATURE OF BANK WITH EXPERIENCE OF THE RESPONDENTS IN BANKS

S.No	Bank Experience	Nature of Bank		Total
		Public	Private	
1	0-5 yrs	12	24	36
		(7.5)	(15.0)	(22.5)
2	6-10 yrs	12	14	26
		(7.5)	(8.8)	(16.3)
3	11-15 yrs	20	10	30
		(12.5)	(6.3)	(18.8)
4	Above 15 yrs	46	22	68
		( 28.8)	(13.8)	(42.5)
Total		90	70	160
		(56.3)	(43.8)	100.0)

Source: Primary Data, Figures in Brackets Indicate Percentage to Total

Table 2.0 highlights the amount of experience possessed by women employees both in private and public sector banks. 22.5 percent of them have 0 to 5 years of experience in banking sector in which 15 percent from private banks and 7.5 percent from public banks. 42.5 percent have more than 15 years of experience in which 28.8 percent from public sector banks. 18.8 percent have 11 to 15 years of experience in which 12.5 percent from public sector banks.

TABLE 3.0: OPINION OF WOMEN EMPLOYEES BASED ON THEIR DESIGNATION ABOUT THE REASON FOR JOINING IN BANKING SECTOR

S.No.	Reasons	Designation/Cadre				Total
		Manager	Officer Level	Assistant	Supporting Staff	
1	Salary Package	8	18	18	8	52
		(5.0)	(11.3)	(11.3)	(5.0)	(32.5)
2	Benefits	6	8	18	4	36
		(3.8)	(5.0)	(11.3)	(2.5)	(22.5)
3	Job Security	6	4	14	2	26
		(3.8)	(2.5)	(8.8)	(1.3)	(16.3)
4	Career Growth	6	8	14	0	28
		(3.8)	(5.0)	(8.8)	(0.0)	(17.5)
5	Others	4	12	2	0	18
		(2.5)	(7.5)	(1.3)	(0.0)	(11.3)
Total		30	50	66	14	160
		(18.8)	(31.3)	(41.3)	(8.8)	(100.0)

Source: Primary Data, Figures in Brackets Indicate Percentage to Total

Table 3.0 shows women employees opinion about the reasons to joining in banking sector based on their designation both in private and public sector banks in Kanchipuram District. 32.5 have joined for salary and benefits in which 11.3 percent belong to officer and assistant level. 22.5 percent for non monetary benefits in which 11.3 assistant level. 16.3 percent have joined for job security and which is 8.8 percent at assistant level. 17.5 percent have joined for career growth and in which 8.8 percent at assistant level. 11.3 percent for other reasons like prestige and image and so on in which 7.5 percent at officer level.

TABLE 4.0: WOMEN EMPLOYEES OPINION ABOUT THE INFLUENCES TO CHOOSE THE SECTOR BASED ON THE NATURE OF BANKS

S. OPINION ABOUT THE INFLUENCES TO CHOOSE THE SECTOR BANK				
S.No.	Influencer to join in Banking sector	Nature of Bank		Total
		Public	Private	
1	Self	26	14	40
		(16.3)	(8.8)	(25.0)
2	Friends and Relatives	24	8	32
		(15.0)	(5.0)	(20.0)
3	Media and Advertisement	14	10	24
		(8.8)	(6.3)	(15.0)
4	Bank Employees	12	22	34
		(7.5)	(13.8)	(21.3)
5	Others( Specify)	14	16	30
		(8.8)	(10.0)	(18.8)
Total		90	70	160
		(56.3)	(43.8)	(100.0)

Source: Primary Data, Figures in Brackets Indicate Percentage to Total

Table 4.0 infers women employees' opinion sources of influences to choose banking career based on their nature of banks employed. 25 percent of them through their self awareness chose this sector in which 16.3 percent from public sector banks, 20 percent through Friends and relatives in which 15 percent from again public sector banks. 21.3 percent through the reference of bank employees and in which 13.8 percent from private banks, 15 percent through media reference and advertisements in which 8.8 percent in public sector banks. 18.8 percent through casual process and recommendations and so on in which 10 percent from private banks.

TABLE 5.0: RESPONDENTS OPINION ABOUT THE CLEARANCE OF JOB ROLES IN PUBLIC AND PRIVATE BANKS

ANALYSIS OF THE CLEARANCE OF JOB ROLES IN				
S.No.	Clearance of job role	Nature of Bank		Total
		Public	Private	
1	Yes	54	40	94
		(33.8)	(25.0)	(58.8)
2	No	36	30	66
		(22.5)	(18.8)	(41.3)
Total		90	70	160
		(56.3)	(43.8)	(100.0)

Source: Primary Data, Figures in Brackets Indicate Percentage to Total

Table 5.0 explains about respondents' opinion about the clarity of job roles both in private and public sector banks. 58.8 percent of respondents have clarity about job role and which is high in public sector banks while compare to private and 41.3 percent do not have proper clarity about job role and which is higher in public while compare to private sector banks.

TABLE 6.0: REASONS FOR NOT HAVING THE CLEAR JOB ROLE AMONG THE WOMEN EMPLOYEES IN PRIVATE AND PUBLIC SECTOR BANKS

S.No.	Reason for not having clear job role	Nature of Bank		Total
		Public	Private	
1	Frequent Job Rotation	4 (6.1)	4 (6.1)	8 (12.1)
2	Work overload	8 (12.1)	6 (9.1)	14 (21.2)
3	Multi Command	4 (6.1)	4 (6.1)	8 (12.1)
4	Job Duplication	6 (9.1)	2 (3.0)	8 (12.1)
5	No Proper Job Description	4 (6.1)	4 (6.1)	8 (12.1)
6	Role Conflict	6 (9.1)	2 (3.0)	8 (12.1)
7	All The Above	4 (6.1)	8 (12.1)	12 (18.2)
Total		36 (54.5)	30 (45.5)	66 (100.0)

Source: Primary Data, Figures in Brackets Indicate Percentage to Total

Table 6.0 shows reasons disclosed by the women employees in private and public banks for the reasons for not having job role clarity. 21.2 percent due to work overload in which 12.1 percent in public sector banks. 12.1 percent for the reasons of role conflict, poor job description, job duplication, multi instruction and which is high public sector banks while compare to private banks.

TABLE 7.0: WOMEN EMPLOYEES OPINION ABOUT WORK STRESS BASED ON THE NATURE OF BANKS

S.No.	Opinion about work stress	Nature of Bank		Total
		Public	Private	
1	Yes	52 (32.5)	34 (21.3)	86 (53.8)
2	No	38 (23.8)	36 (22.5)	74 (46.3)
Total		90 (56.3)	70 (43.8)	160 (100.0)

Source: Primary Data, Figures in Brackets Indicate Percentage to Total

Table 7.0 explains the opinion of women employees about the work stress in private and public banks. 53.8 percent of women employees accept the source of work stress in which it is higher in public sector banks and 46.3 percent do not feel work stress and which is also higher in public sector banks.

TABLE 8.0: WOMEN EMPLOYEES IN PRIVATE AND PUBLIC SECTOR BANKS AND THEIR OPINION THE INFLUENCE OF EFFECTIVE QUALITY WORK LIFE ON THEIR SOCIETY

S.No.	Opinion of QWL of society	Nature of Bank		Total
		Public	Private	
1	High	14 (8.8)	14 (8.8)	28 (17.5)
2	Medium	58 (36.3)	52 (32.5)	110 (68.8)
3	Low	18 (11.3)	4 (2.5)	22 (13.8)
Total		90 (56.3)	70 (43.8)	160 (100.0)

Source: Primary Data, Figures in Brackets Indicate Percentage to Total

Table 8.0 highlights the women employees' opinion about the influence of quality work life on their social life based on their banks they belong. 68.8 percent agree the influence in medium in which 26.3 belong to public sector banks and 32.5 percent belong to private category. 17.5 percent agree it is high and 13.8 percent express it is low.

#### 9.0. WOMEN EMPLOYEES OPINION IN BANKING SECTORS REGARDING SECURITY AND GROWTH OPPORTUNITIES BASED ON THE DESIGNATION OF THE RESPONDENTS

**Null Hypothesis (Ho):** There is no significant difference among women employees opinion about the factors regarding security and growth based on designation at 5% level of significance

**Alternative Hypothesis (Ha):** There is significant difference among women employees opinion about the factors regarding security and growth based on designation at 5% level of significance

TABLE 9.0: WOMEN EMPLOYEES OPINION IN BANKING SECTORS REGARDING SECURITY AND GROWTH OPPORTUNITIES BASED ON THE DESIGNATION OF THE RESPONDENTS

Factors		Sum of Squares	Df	Mean Square	F	Significance	Remarks
Job Security	Between Groups	2.236	3	.745	2.396	0.040	Significant
	Within Groups	48.539	156	.311			
	Total	50.775	159				
Promotion	Between Groups	7.607	3	2.536	2.596	0.034	Significant
	Within Groups	152.393	156	.977			
	Total	160.000	159				
Job Advancement	Between Groups	3.309	3	1.103	1.407	0.243	Not Significant
	Within Groups	122.291	156	.784			
	Total	125.600	159				
Self Improvement	Between Groups	11.641	3	3.880	3.799	0.012	Significant
	Within Groups	159.334	156	1.021			
	Total	170.975	159				
Training Opportunities	Between Groups	5.909	3	1.970	1.688	0.172	Not Significant
	Within Groups	182.066	156	1.167			
	Total	187.975	159				

Source: Primary Data

The ANOVA test is applied to test the significant difference exist in the opinion of women employees in private and public banks about the **security and growth opportunities based on the Designation**. The significant difference exist among the opinion of women employees about job security, promotion and self improvement, since the obtained values is less than 0.05 and there is no significant difference exist about the job advancement and training opportunities.

#### 10.0. Women Employees Opinion about the effect of place of work and personal benefits on quality of work life in banking Sectors based on the Nature of Banks

**Null Hypothesis (Ho):** There is no significant differences exist in the opinion of women employees about the effect of place of work and personal benefits on quality of work life based on their nature of banks at 5% level of significance.

**Alternative Hypothesis (Ha):** There is significant difference exist in the opinion of women employees about the effect of place of work and personal benefits on quality of work life based on their nature of banks at 5% level of significance.

TABLE 10.0: WOMEN EMPLOYEES OPINION ABOUT THE EFFECT OF PLACE OF WORK AND PERSONAL BENEFITS ON QUALITY OF WORK LIFE IN BANKING SECTORS BASED ON THE NATURE OF BANKS

Parameter		Sum of Squares	Df	Mean Square	F	Significance	Remarks
Influence of Place of work and its effectiveness of quality of work life	Between Groups	52.289	1	52.289	1.499	0.223	Not Significant
	Within Groups	5512.686	158	34.890			
	Total	5564.975	159				
Influence of personal benefits on quality of work life	Between Groups	.390	3	.130	0.179	0.910	Not Significant
	Within Groups	113.110	156	.725			
	Total	113.500	159				

Source: Primary Data

The table 10 tests the significant difference exist in the opinion of women employees in private and public sector banks about the effect of place of work and personal benefits on quality of work life. The results of ANOVA obtained is more than 0.05 and infers that there is no significant difference exist in the opinion of women employees about the effect of personal benefits and place of work on the quality of work life of women employees in private and public sector banks in Kanchipuram District.

#### 11.0. WOMEN EMPLOYEES OPINION ABOUT THE JOB INTERFERENCE IN FAMILY LIFE BASED ON THEIR MARITAL STATUS

**Null Hypothesis (Ho):** There is no association among women employees about the demand of job interference in family life based on marital status of the respondents at 5% level of significance.

**Alternative Hypothesis (Ha):** There is association among women employees about the demand of job interference in family life based on marital status of the respondents at 5% level of significance.

TABLE 11.0: WOMEN EMPLOYEES OPINION ABOUT THE JOB INTERFERENCE IN FAMILY LIFE BASED ON THEIR MARITAL STATUS

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.685 <sup>a</sup>	2	0.158
Likelihood Ratio	5.278	2	0.071
Linear-by-Linear Association	.253	1	0.615

Source: Primary Data

Table 11.0 test the association between women employees opinion about the job interface on their family based on their marital status. By applying chi-square test, it is inferred that there is no association between job interface and its impact on family based on the marital status of women employees working in banking sectors. Since the obtained value is 0.158 and which is more than 0.05.

#### 12.0. WOMEN EMPLOYEES OPINION ABOUT THE INFLUENCE OF VARIOUS FACTORS ON QUALITY OF WORK LIFE BASED ON THEIR DESIGNATION

**Null Hypothesis (Ho):** There is no significant difference among women employees opinion about the influencing factors on quality of work life based on their designation at 5% level of significance at 5% level of significance.

**Alternative Hypothesis (Ha):** There is significant difference among women employees opinion about the influencing factors on quality of work life based on their designation at 5% level of significance at 5% level of significance.

TABLE 12.0: WOMEN EMPLOYEES OPINION ABOUT THE INFLUENCE OF VARIOUS FACTORS ON QUALITY OF WORK LIFE BASED ON THEIR DESIGNATION

Opinion regarding factors of Quality of Work Life		Sum of Squares	df	Mean Square	F	Sig.	Remarks
Independence	Between Groups	3.513	3	1.171	1.180	0.319	Not Significant
	Within Groups	154.862	156	.993			
	Total	158.375	159				
Appreciation	Between Groups	1.747	3	.582	0.563	0.640	
	Within Groups	161.353	156	1.034			
	Total	163.100	159				
Social and Family Support	Between Groups	4.529	3	1.510	1.496	0.218	
	Within Groups	157.446	156	1.009			
	Total	161.975	159				

Source: Primary Data

Table 12.0 tests the significant difference in the women employees' opinion about the influencing factors on their quality of work life. From the obtained values, it is inferred that there is no significant difference exist in the opinion of women employees about the influence of independence, appreciation and social, family support on their quality of work life. Since the obtained values are more than 0.05.

**13.0. WOMEN EMPLOYEES OPINION ABOUT THE LEVEL OF SATISFACTION AND ITS INFLUENCE ON QUALITY OF WORK LIFE BASED ON THE NATURE OF BANK**

**Null Hypothesis (Ho):** There is no significant difference exist among women employees about the satisfaction level and its influence on quality work life based on the nature of bank at 5% level of significance.

**Alternative Hypothesis (Ha):** There is significant difference among women employees about the satisfaction level and its influence on quality work life based on nature of bank at 5% level of significance.

TABLE 13.0: WOMEN EMPLOYEES OPINION ABOUT THE LEVEL OF SATISFACTION AND ITS INFLUENCE ON QUALITY OF WORK LIFE BASED ON THE NATURE OF BANKS

Satisfaction level regarding the factors of quality of Work Life		Sum of Squares	df	Mean Square	F	Sig.	Remarks
Work Schedule	Between Groups	.604	1	.604	0.635	0.427	Not Significant
	Within Groups	150.171	158	.950			
	Total	150.775	159				
Welfare Activities	Between Groups	.432	1	.432	0.460	0.498	
	Within Groups	148.343	158	.939			
	Total	148.775	159				
Packages and Benefits	Between Groups	1.729	1	1.729	1.921	0.168	
	Within Groups	142.171	158	.900			
	Total	143.900	159				

Source: Primary Data

Table 13.0 tests the significant difference exist in the opinion of women employees working in banking sectors about the influence of the satisfaction of factors like welfare, work schedule and packages and benefits based on their nature of banks. From the obtained values, it is inferred that there is no significant difference exist in the opinion of women employees about the influence of welfare activities, packages and work schedule on their quality of work life.

**X. SUMMARY OF FINDINGS**

1. It is found that 63.8 percent of women employees working in banking sectors are in the age of more than 40.
2. Regarding the Educational qualifications 32.5 percent of women employees both in private and public sector banks in the study area are graduates and post graduates.
3. Majority of them are married both in private and public sector banks and among the unmarried employees are high in private banks than public sector banks.
4. More than 45 percent of the employees working in public sector banks have 15 years and above experience and where as in private banks most of them have 10 to 15 years of experience.
5. 65 percent of them get more than 10,000 income both in private and public sector banks.
6. The employment of women in public sector banks are slightly higher while compare to private banks in the study area.
7. 41.3 percent of the women employees both in private and public sector banks in the study area occupy the level of assistant and the percentage women employees occupy top level is still low in both private and public sector banks while compare to male employees.
8. It is found that the women employees in the cadre of manager, officer and supporting staff level prefer banking sector for the reason of salary packages, in the level of assistant they prefer for salary packages and benefits.
9. Regarding the sources of influences of women employees to choose private and public sector banks. Friends and relatives are the major sources of references for women employees to choose public sector banks and existing banks employees in banks are the major sources for women employees to choose private banks.
10. The women employees in public sector banks are much clear about their job roles than private bank employees in the study area. The major reason for the poor job role clarification among the women employees in private sector banks is work load.
11. Compare to women employees in private banks, the public sector employees undergo for more work stress.
12. The influence of quality work life on the social role of women employees are high among both private and public sector banks, low with public sector bank employees than private banks. Regarding the security and safety related aspects towards quality work life, the opinion of employees significantly differ in private and public sector banks with reference to job security, promotion and self improvement.
13. The opinion of women employees working in private and public banks about the effect of place of work and personal benefit significantly do not differ.
14. The women employees in private and public sector bank feels there is no association between job interference on quality work life and family life.
15. The opinion about the influence of the factors like independence, appreciation, social and family support on quality work life do not differ significantly.
16. The women employees working in private and public sector banks and their opinion about the influence and its satisfaction of the factors like work schedule, welfare and salary packages do not differ significantly.

**XI. SUGGESTIONS**

1. The bank management both in private and public banks can consider the profile of women employees for middle and top level designations.
2. The women employees may show more interest on assuming challenging responsibilities especially in technology driven areas both in private and public sector banks.
3. The efforts can be made through proper training programme through suitable modes to still get better job role clarity.
4. The exclusive appreciation and recognition packages may be introduced for women employees both in private and public sector banks.
5. The work place empowerment programmes may be introduced in both private and public sector banks.
6. The proper stress management programme through mentoring and training can be arranged for women employees working in public sector banks.
7. The innovative recruit programmes may be reintroduced in public sector banks in order to attract pool of new generation talents among the women.

**XII. CONCLUSION**

The role of women in modern employment scenario is inevitable. The idle utilization of skills and knowledge of women employees can deliver better results and benefits to the organization they belong. In this aspect, the role and the participation of women employment both in private and public sector banks are imperative in today's banking industry. The banking industry carry the logo of service and which is to be provided with better customer touch and that is possible only by the serving support of women employees at all levels both in private and public sector banks. Through the study it is concluded that the augmenting job role of women in banking industry need better working environment and support for them to make them ever productive employees and which in turn help the banks to compete effectively in the market for both organisational and customer benefits. For bring this the quality work life among the women employees both in private and public sector banks need to be revitalized in years to come.

**XIII. REFERENCES**

1. C.B.Mamoria and S.V.Gankar, (2010), "A text book of Human Resource Management", Himalaya publishing house, New Delhi, pp.291-296
2. C.R.Kothari, (2004), "Research Methodology – methods & techniques", New age international publishers, New Delhi, pp.256-263
3. Che Rose, R; Beh L.S, Uli, J, Idris K. (2006), "An Analysis of Quality of Work Life and Career- Related Variables". *American Journal of Applied Sciences*, Vol.3 (12), pp. 2151-2159.
4. Dr.Deepak chawla, Dr.Neena sondhi,(2011), "Research Methodology- concepts and cases", Vikas Publishing House Private Limited, New Delhi, pp.219-224
5. K.Aswathappa , (2009) "Human Resource Management", Tata MC Graw Hill Education Private limited, New Delhi, Edition 3, pp.256-263
6. Loscocco, K.A. and A.R. Roschelle, (1991), "Influences on the quality of work and non-work life: two decades in review", *Journal of Vocational Behavior*, Vol.39, pp.182-225.
7. Okpara, H. (2004), "Reutilization of Job context and job content as related to Employees Quality of Working Life", *Journal of organizational behavior*, Vol.12. pp. 379-386.
8. Rao. K.V.S.Rajeswara&Bakkappa.B. (2009), "Modeling Approach to the Analysis of the Influence of Human Resource Practices on Quality of Work Life in Call Centre Industries using Optimization techniques", *JK Journal of Management & Technology*, Vol.1, (1), pp.34-54.
9. Sadique, Z (2003), "Quality of Work Life among White Collar and Blue Collar Employees", *Journal of the Institute of Bangladesh Studies*, Vol. 26, pp. 169-174.
10. Sandrick, K. (2003), "The Quality of Working Life – A New Paradigm in Corporates", *Management and Industrial psychology*, Vol.57 (4), pp. 43 – 54.
11. Sirgy, M. J., Efraty.D., Siegel, P & Lee, D. (2001). "A new Measure of Quality of Work Life based on Need Satisfaction and Spillover Theories", *Social Indicators Research*, Vol.55, pp.241-302.
12. Straw, R. J &Heckscher, C. C. (1984), "QWL: New Working Relationships in the Communication Industry", *Labor Studies Journal*, Vol. 9, pp. 261-274.

**MANAGEMENT OF DISTANCE EDUCATION SYSTEM THROUGH ORGANIZATIONAL NETWORK**

**MEENAKSHI CHAHAL**  
**ASST. PROFESSOR**  
**B.ED PROGRAMME**  
**DIRECTORATE OF DISTANCE EDUCATION**  
**KURUKSHETRA UNIVERSITY**  
**KURUKSHETRA**


**ABSTRACT**

*An organization tries to develop internally so that it could function progressively and leave an impact on all those concerned in the society. The programme development activities are largely taken care of by the head quarters. A well developed Management Information System (MIS) gears the organization towards more effective and efficient functioning. Educational media involves the tasks of media programme and provides interactive learning experiences. Distance teaching institutions are constantly engaged and has become more competitive in ensuring quality appropriateness and flexibility in programme offerings. Thus distance teaching institution requires proper networking, team work and communication etc. Web course tools, threaded discussion groups, e-mail, chat, instant messaging, streaming media/video, animations, application sharing, audio/video conferencing etc. are being adopted and used increasingly by distance education institutions in the effective management concerned with organizational network.*

**KEYWORDS**

Management Information System , Web course tools, Animations.

**INTRODUCTION**

istance Teaching Institution (DTI) usually functions within an organizational network of head quarters, regional centres, study centres, work centres and programme centres etc. Effectiveness and Efficiency are important principles of a well managed institution that endeavours to establish its own culture and others. The functional sub systems may be independently handled and coordinated through a Management Information System (MIS). Institution building is at the core of institutional management. An organization has its missions ,objectives and plan of action so that set objectives could be achieved . The programme development activities are largely taken care of the by head quarters. The activities are the responsibility of the regional and study centers with centralized coordination by certain 'Divisions' at the Headquarter. There are various Schools or Department Of Studies within the head quarter. These support divisions manage admissions, material printing and distribution , media production, regional services, evaluation, staff training, research and evaluation etc. Material design and development is taken care of by the teachers/ academic staff. The other related activities are taken care of by the other staff in the units concerned.

**OBJECTIVES**

- to describe Management Information System
- to explain network analysis , collaboration and e-learning technology in the effective management
- to describe various management issues in distance education institutions

An Organization can function effectively and provide maximum satisfaction to the learners through the management system. The management system requires a well organized and coordinate interaction pattern.

**INSTITUTION BUILDING**

Institution Building is at the core of institutional management. The organization must exercise the powers and carryout responsibilities envisaged in the approved plan. Necessary arrangements, work allocation methods , procedures , resources training, television and interaction multimedia etc. include tasks of designing and developing the media programmes. It provides interactive learning experiences to the learners. Development of these programmes involve scripting , shooting production and dispatch delivery for actual use at the learner's end . The collaborative approach to development of media materials requires sufficient experience and patience.

**COURSE DESIGN**

Course design and development exercises are mainly handled by the teachers and academics . A team is involved in the course development activity. In a team process the programme, course coordinators and faculty of the discipline is involved. Faculty involves the course writers, copy editors, graphic artists, language editors , instructional designers, media producers and printers etc. Each one has an assigned role to play and is accountable . Thus the management of entire process is a difficult and tedious one. It requires specialized skills of bringing out effective learning materials tutors and counsellors.

**STUDENT SUPPORT SERVICES**

Tutors and Counsellors i.e. Academic Counsellors are the most crucial agents of distance teaching-learning process. They act as subject experts, mentors, feedback providers, assessors and information providers. Management of Student Support Services include interaction and coordination with school of studies and other service units of the institution. The committed functionaries include timely admission of students, dispatch of study material, proper conductance regarding counselling sessions, communication to learners, maintenance of a continuous feedback and reliable evaluation etc. In the same way technologies like tele- conferencing and radio counselling involve large networks that needs to be maintained and managed. Technologies like computer (LAN and WAN) are involved in the operation of the system, information storage and dissemination along with development of learning packages. Thus distance education has tended to largely depend upon the technologies of delivery and interaction . Distance education has become more competitive in ensuring quality, appropriateness and flexibility in programme offerings for the prospective clients. The network, networking and collaboration have been crucial to the effective functioning of DTIs. Networks may lead to credit transfers among institutions and joint development thus sharing towards teaching learning resources. Support Services include the academic functions as tutorial, advising and counselling services along with administrative functions as enrolment, admission and registration, record keeping, information provision and delivery of study materials etc.

**MANAGEMENT INFORMATION SYSTEM**

Management Information System includes collection, processing and retrieving of information at continuous intervals for the effective management. A 'SWOT' analysis (i.e. Strengths, Weaknesses, Opportunities and Threats) based on an effective MIS becomes more effective for constantly helping the organization move forward. Thus MIS should be continuous, timely, accurate and relevant.

**EVALUATION SYSTEM**

Evaluation of distance learning involves continuous and term end assessment. Continuous evaluation requires assessment of individual and group projects, tutor and computer marked assignments and experiments etc. Final evaluation is done through examinations. Thus the management regarding assessment of assignments and examinations is very complex and difficult. In open universities and the correspondence institutes, it becomes more complex and requires better management. Learners need to be constantly informed about the evaluation activities so that appropriate decisions could be made at appropriate time.

**MANAGEMENT ISSUES**

Managing a distance teaching Institution and its sub systems involve consideration of a host of variables as Quality Control, Technological Innovations, Marketing, Networking and Accountability. Qualitative aspects need to be handled through continuing professional development and experiential learning by the functionaries. The level of quality depends on the level of professionalism and human resources engaged in distance teaching.

**NETWORK ANALYSIS AND COLLABORATION**

Organizational Network Analysis offers a useful methodology to help executives to do various things as assessing broader patterns of informal networks among individuals, teams, functions and organizations and taking targeted steps to align networks with strategic imperatives. Network Survey and Analysis software allows senior managers to gather a wide range of data from employees about their collaboration as looking for information and expertise, engaging in decision making and innovative brainstorming etc.

Thus using a management system, personal tools and social networks distance education institutions focus on empowerment of students and management of learning.

**CONCLUSION**

Thus an outlined approach to e-learning focuses on students alongwith providing the tools to support the self-governed, problem-based and collaborative activities in the institution management. Existing social software tools such as weblogs, wikis and social bookmarking are used to support e-learning activities in management of institutions. Effective innovation often requires a striking balance between external connectivity and internal influence. To ensure uptake and engagement on externally sourced ideas, employees who broke new ideas must be respected and sought out internally in the management of distance education institutions.

**REFERENCES**

1. Caiwei Ma, E - collaboration: A Universal Key to Solve Fierce Competition in Tourism Industry, International Business Research October 2008, Economy & Management Department, Tianhua
2. Christian Dalsgaard, Social Software: E-learning Beyond Learning Management Systems Institute of Information and Media Studies, Denmark
3. College of Shanghai Normal University, Jiading District, China Wendy Kitson-Piggott, The Caribbean Epidemiology Centre, Facilitating Learning through Collaboration in a World without Frontiers
4. Designing Online Learning Environment For Distance Learning, T. A. Weerasinghe, R. Ramberg, K. P. Hewagamage Sweden and Sri Lanka
5. Dr. Salih USUN, Learner Support Services in Distance Education System, Turkish Online Journal of Distance Education-TOJDE October 2004, ISSN 1302-6488, Volume: 5 Number: 4
6. J. Barojas Weber, J. Sierra Vázquez and R. Martínez Romero, Application of a knowledge management network in distance education, FORMATEX 2006
7. MIT SLOAN, Management Review, Harvard Division Of Continuing Education professional development

**A STUDY ON CONSTRUCTION OF OPTIMAL PORTFOLIO USING SHARPE'S SINGLE INDEX MODEL****ARUN KUMAR .S.S****LECTURER****DR. C. V. RAMAN COLLEGE OF ADMINISTRATION & NETWORK SCIENCES****DAVANGERE****MANJUNATHA.K****ASST. PROFESSOR****DEPARTMENT OF COMMERCE****RANI CHANNAMMA UNIVERSITY PG CENTRE****BIJAPUR****ABSTRACT**

Capital market comprising the new issues market and secondary markets or stock market, is one of the most sensitive market in the whole economy. The secondary market enables investors to continuously rearrange their assets if they so desire by divesting themselves of such assets while others can use their surplus funds to acquire them. This rearrangement is not a product of instant decisions but a thorough research. In order to have a model of the portfolio return, we have to model the individual assets as well as their dependencies. Based on these models, we compute the portfolio return and its characteristics. 'A portfolio optimization is only possible once we have a model of the portfolio return. The investment decisions are derived from the portfolio optimization'. We therefore aim to control the financial risk that an investor takes. This raises the question of how to define financial risk, which is still an open issue in theory and in practice. Risk is the exposure to some uncertain future event. The probabilities of the different outcomes of this future event are assumed to be known or estimable measures have been proposed so far, but no risk measure is well suited for all problems arising in the area of financial engineering. Obviously, the asset allocation process refers to the process of investing money in different financial assets. There is no generally accepted methodology for this problem. The first step of the elaboration of an asset allocation strategy is the definition of the risk measure. However, not all risk measures are well suited for the derivation of optimal asset allocation strategies. There are many keywords describing different stages of the asset allocation process, e.g., strategic and tactical asset allocation. We consider the asset allocation process as an iterative process since a continuous monitoring of the portfolio characteristics is essential. Hence, an attempt is made to "study construction of optimal portfolio using Sharpe's Single index model".

**KEYWORDS**

Sharpe's single index model, Sharpe ratio, optimal portfolio.

**INTRODUCTION**

A Portfolio is a combination of different investment assets mixed and matched for the purpose of achieving an investor's goal. A portfolio is a professional and stylish way to display projects and prevents them from getting lost, dirty or damaged. The key to creating an efficient portfolio is reaching desired goal by using as little resources as possible.

The ideal investment is to pick a low risk stock in hopes of big returns. That is nearly impossible. In the game of investing, high risk equals high return and vice versa. Harry Markowitz's Modern Portfolio Theory explains that by diversification the potential risk can be dispersed throughout portfolio. This means balance a high risk stock with a low risk stock, as well as investing in different sectors.

Here is a right way and a wrong way to build a securities portfolio. Like horse racing, where you may do well short term by picking horses by the color of their silks.

Building a portfolio is not as simple as putting random pieces of work into a folder, and requires time, thought and organization. Building a stock portfolio is very difficult to do because it takes a lot of study. But, in the end, the ability of the stock market to grow over time will most likely lead to reaching goals. This ensures people who view portfolio can see talents instantly, and are more likely to be impressed by what they see.

Investment managers of leading mutual funds are in the business of amassing stock for many companies based on the fund's unique characteristics. In essence, mutual funds can provide with more diversification than if you were to buy individual stocks on own.

**STATEMENT OF THE PROBLEM**

One aspect of financial engineering is the development of portfolio management strategies. By definition, a portfolio is a collection of investments held by an institution or an individual. Holding a portfolio with different investments instead of a single one is reducing the investor's risk and is called diversification.

In order to have a model of the portfolio return, we have to model the individual assets as well as their dependencies. Based on these models, we compute the portfolio return and its characteristics. 'A portfolio optimization is only possible once we have a model of the portfolio return. The investment decisions are derived from the portfolio optimization'.

We therefore aim to control the financial risk that an investor takes. This raises the question of how to define financial risk, which is still an open issue in theory and in practice. Risk is the exposure to some uncertain future event. The probabilities of the different outcomes of this future event are assumed to be known or estimable measures have been proposed so far, but no risk measure is well suited for all problems arising in the area of financial engineering. Obviously, the asset allocation process refers to the process of investing money in different financial assets. There is no generally accepted methodology for this problem.

The first step of the elaboration of an asset allocation strategy is the definition of the risk measure. However, not all risk measures are well suited for the derivation of optimal asset allocation strategies.

There are many keywords describing different stages of the asset allocation process, e.g., strategic and tactical asset allocation. We consider the asset allocation process as an iterative process since a continuous monitoring of the portfolio characteristics is essential.

Hence, an attempt is made to "study construction of optimal portfolio using Sharpe's Single index model".

**REVIEW OF LITERATURE**

In paper titled "An extension of Sharpe's single-index model: portfolio selection with expert betas" A Bilbao, M Arenas, M Jiménez, B Perez Gladish and M V Rodríguez presented an approach to the portfolio selection problem based on Sharpe's single-index model and on Fuzzy Sets Theory. In this sense, expert estimations about future Betas of each financial asset have been included in the portfolio selection model denoted as 'Expert Betas' and modelled as trapezoidal fuzzy numbers. Value, ambiguity and fuzziness are three basic concepts involved in the model which provide enough information about fuzzy numbers representing 'Expert Betas' and that are simple to handle. In order to select an optimal portfolio, a Goal Programming model has been proposed including

imprecise investor's aspirations concerning asset's proportions of both, high-and low-risk assets. Semantics of these goals are based on the fuzzy membership of a goal satisfaction set. To illustrate the proposed model a real portfolio selection problem is presented.

In paper titled as CONSTRUCTION OF OPTIMAL PORTFOLIO OF EQUITY, USING SHARPE'S SINGLE INDEX MODEL: A CASE STUDY OF IT SECTOR it is found that Portfolio is the collection of financial or real assets such as equity shares, debentures, bonds, treasury bills and property etc. portfolio is a combination of assets or it consists of collection of securities. These holdings are the result of individual preferences, decisions of the holders regarding risk, return and a host of other considerations. Portfolio management concerns the construction & maintenance of a collection of investment. It is investment of funds in different securities in which the total risk of the Portfolio is minimized while expecting maximum return from it. It primarily involves reducing risk rather than increasing return. Return is obviously important though, and the ultimate objective of portfolio manager is to achieve a chosen level of return by incurring the least possible risk. This paper presents an approach to the portfolio selection problem based on Sharpe's single-index model. To illustrate the model, a real portfolio selection problem is presented. The study is carried out to fulfill the objectives like (i) to construct an optimal portfolio by implementing Sharpe's single index model. (ii) To know the proportion of each security in the optimal portfolio. This paper aims at developing an optimal portfolio of equity of IT sector, through Sharpe's Single Index Model. For the study, six top performing IT companies traded in BSE were taken and the optimal portfolio was constructed with 5 companies

In paper titled as 'Construction of an optimal portfolio: an application to sharpe's single index model' it is found that an approach to the portfolio selection problem based on Sharpe's single-index model. To illustrate the model, a real portfolio selection problem is presented. The study is carried out to fulfill the objectives like (i) to construct an optimal portfolio by implementing Sharpe's single index model, (ii) to verify and investigate the optimal portfolio framed out of the selected stocks on the basis of risk and return (beta and expected returns, respectively). This attempt has been made by selecting the most representative stocks of the Indian economy, that is, the securities listed in BSE Sensex. All the thirty securities have been taken for the study. Through implementing financial techniques suggested by Sharpe individually on these stocks, results have been found in terms of optimal portfolio. The research will be helpful for researchers to understand the practical aspect of the model as well as for investors who want to diversify the unsystematic risk by diversification of the investments.

In a paper titled as An extension of Sharpe's single-index model: portfolio selection with expert betas the Bilbao A, Arenas M, Jiménez M, Perez Gladish B, Rodríguez found that application using quarterly data for 1996-2000 concerning 26 Spanish mutual funds. Sets DM goals of: 3.5% return minimum; Beta less than/equal to '1'; residual variance < 15; satisfaction degree for high-risk/low-risk assets proportion (~20%/~50% of budget) to be '0.5'; and, maximum investment in each fund to be no more than 35% of budget. Uses PROMO software (Luque, 2000) for solution calculation.

*Research limitations/implications* - Seeks an extended model.

*Originality/value* - Presents a fuzzy-based goal programming portfolio selection model that enables both analyst and decision-maker to work together

## SCOPE OF THE STUDY

1. Selections of companies are restricted to S&P CNX Nifty of 50 companies.
2. The companies chosen and analyzed are based on their performance of certain parameters for the recent past five years.

## OBJECTIVES OF THE STUDY

1. To analyze the performance of securities based on aggregate weighted Average of EPS, RONW, SALES and NET PROFIT.
2. To construct the optimal portfolio using Sharpe model.
3. To provide findings based on analysis.

## METHODOLOGY

### I) DATA COLLECTION

#### A) SECONDARY DATA

Stocks covered in S&P CNX Nifty are taken out for analysis based on EPS, RONW, Sales, and Net Profit of the recent past five years of yearly data. The securities which tops on Aggregate Weighted Average will be selected for constructing portfolio. Data has been collected from secondary data only. This data is obtained from WWW.nseindia.com, www.nseindia.com, www.economics.com, www.capitaline.com. While calculating Weighted Averages, recent years are given more weightages and distant year are given the least weightages. But all of these (i.e. top fifty) securities are chosen, based on Weighted Averages, for Optimum Portfolio Construction. Only one security from each sector is chosen with intention to maintain portfolio diversification. These securities are further given ranks on the basis of excess of return over risk free return (Risk Premium) to beta. The criterion for awarding marks/points depends on the higher the rank, the higher the marks/points, for example, I rank- 50 marks, II-49, III-48.....XXX-1. The optimum portfolio is built using Sharpe model.

#### II) STATISTICAL TOOLS USED

For analyzing the securities, various statistical tools used like,

1. weighted and simple averages,
2. standard deviation,
3. regression analysis,
4. systematic and unsystematic risk etc.;

## LIMITATIONS OF THE STUDY

1. The study is limited to construct the optimal portfolio.
2. Out of 50 stocks of Nifty index, the constitution of portfolio is arrived by considering few stocks.
3. The portfolio is constructed purely on the basis Sharpe's model which basically considers the "stock price movements and does not take into consideration company, industry and economic specific factors".

## THEORETICAL BACKGROUND OF PORTFOLIO CONSTRUCTION

### CONSTRUCTION OPTIMAL PORTFOLIO

➤ Sharpe's single index model

#### SINGLE INDEX MODEL

Casual observations of the stock prices over a period of time reveals that most of the stock prices move with the market index.

Selection of securities based on the management efficiency and security analysis to be done on parameters like Weighted average of Sales, net profit, EPS, return on net worth, etc.

➤ Computing the rate of return of the stocks included in portfolio, using daily closing prices of each company

$$R_i = \frac{P_t - P_o}{P_o} \times 100$$

P<sub>t</sub> = current year price

P<sub>o</sub> = previous year price.

- Computing the rate of return of the Nifty index, using daily closing points.

$$R_m = \frac{P_t - P_o}{P_o} \times 100$$

P<sub>t</sub> = current year price.      P<sub>o</sub> = previous year price.

- Beta, to evaluate the risk.

$$\beta = \frac{N \sum xy - (\sum x)(\sum y)}{N \sum x^2 - (\sum x)^2}$$

- Computing the excess return to Beta to rank the securities using following formula:

$$\left[ \frac{R_i - R_f}{B} \right]$$

Rank the securities highest to the lowest.

- Computing variance of the NIFTY movement  
X-mean

$$\sigma_m^2 = \frac{\text{X-mean}}{N-1}$$

- Computing variance of the Stocks movement  
X-mean

$$\sigma_{ei}^2 = \frac{\text{X-mean}}{N-1}$$

- Computing the systematic and unsystematic risks

$$\text{Systematic risk} = \beta^2 \sigma_m^2$$

$$\text{Unsystematic risk} = \sigma_{ei}^2 - \text{Systematic risk}$$

- Computing C<sub>i</sub> values for all the stocks according to the ranked order using the following formula:

$$C_i = \frac{\sigma_m^2 \sum (R_i - R_f) \beta / \sigma_{ei}^2}{1 + \sigma_m^2 \sum \beta^2 / \sigma_{ei}^2}$$

- Computing X<sub>i</sub> and Z<sub>i</sub> to determine how much funds needs to be invested in each security can estimated as follows:

$$X_i = \frac{Z_i}{\sum Z_i}$$

$$Z_i = \beta^2 / \sigma_{ei}^2 \left[ \frac{R_i - R_f}{B} - C^* \right]$$

**ANALYSIS FOR PORTFOLIO CONSTRUCTION**

The following table shows ranking of securities based on weighted averages of EPS, Sales, Net profit and return on network:

**TABLE - 1**

Rank	WAEPS	Companies	WAS	Companies	WANP	Companies	WARONW	Companies
1	124.835	SBI	151754.667	RIL	16206.389	ONGC	91.899	HUL
2	91.125	Infosys	128849.427	BPCL	15532.467	RIL	44.797	Hero Honda
3	89.979	Punjab Bank	60653.438	ONGC	15374.256	L & T	39.514	TCS
4	84.578	RIL	58116.748	SBI	7882.680	NTPC	32.165	Unitech
5	78.035	ONGC	44999.936	SAIL	7732.791	SBI	30.973	INFOSYS
6	75.859	BHEL	41344.501	NTPC	7127.818	Bharti Airtel	30.476	Siemens LTD
7	73.033	Hero Honda	29914.711	L & T	6494.823	SAIL	28.831	Bharti Airtel
8	70.163	ACC	29650.219	Tata Motors	5045.867	INFOSYS	27.301	Jindal Steel
9	66.453	L & T	29202.195	Bharti Airtel	4803.515	Tata Steel	27.029	Wipro
10	64.683	Tata Steel	27037.639	ICICI Bank	4709.008	TCS	26.341	ITC
11	62.058	Maruti Suzuki	26631.818	BHEL	3759.408	ICICI Bank	26.163	SAIL
12	56.429	Jindal Steel	22541.479	Tata Steel	3551.987	Wipro	25.995	BHEL
13	51.141	HDFC Bank	22284.722	Maruti Suzuki	3356.997	ITC	24.743	L & T
14	44.441	AXIS Bank	20498.561	GAIL	3279.508	BHEL	24.319	M & M
15	43.641	R Infra	20103.323	TCS	2837.068	Punjab Bank	22.129	Sun Pharma
16	40.402	TCS	19321.860	Wipro	2741.463	GAIL	21.935	ONGC
17	39.050	Tata Power	18412.367	Hindalco	2331.295	HDFC Fin – Hou	21.173	Punjab Bank
18	38.127	BPCL	17935.067	Infosys	2109.831	HDFC Bank	20.969	Tata Steel
19	35.815	Tata Motors	17370.195	HUL	2109.374	Hindalco	20.525	DLF
20	35.024	ICICI Bank	15374.256	ITC	2076.529	HUL	19.894	GAIL
21	28.518	Reliance Capital	14131.292	M & M	1793.017	Maruti Suzuki	19.429	Cipla
22	26.103	Siemens LTD	12986.134	HDFC Bank	1740.368	R Com	19.113	Maruti Suzuki
23	25.343	GAIL	12859.714	Hero Honda	1682.702	Tata Motors	19.029	HDFC Fin – HoU
24	25.222	M & M	12545.295	R Com	1656.688	AXIS Bank	18.091	JP Associate
25	24.271	Wipro	12243.248	Punjab Bank	1529.360	PGCI	17.991	Tata Motors
26	21.635	IDFC LTD	12210.373	Sterlite India	1458.463	Hero Honda	17.357	BPCL
27	18.776	Bharti Airtel	9407.682	HDFC FIN – HOU	1389.586	Ambuja Cement	16.645	RIL
28	16.600	HDFC Fin – Hou	8970.503	AXIS BANK	1376.728	BPCL	14.879	HDFC Bank
29	15.724	SAIL	8391.432	Siemens Ltd	1339.324	M & M	14.567	SBI
30	15.031	HCL	8326.341	IDEA	1318.289	ACC	14.149	IDFC Ltd
31	14.787	ABB	8262.291	R Infra	1282.278	JINDAL STEEL	13.747	NTPC
32	14.780	Hindalco	7814.311	ACC	1238.711	DLF	12.663	PGCI
33	11.411	Cipla	7007.242	Ambuja Cement	1027.789	JP Associate	12.570	IDEA
34	10.710	Ranbaxy	6498.536	JP Associate	1022.159	R Infra	11.999	Hindalco
35	10.083	HUL	6411.829	Tata Power	963.741	HCL	11.443	Reliance Capital
36	9.563	NTPC	6293.366	Jindal Steel	954.379	Sun Pharma	10.307	Tata Power
37	9.308	Sun	6262.410	ABB	935.819	Sterlite India	9.678	Kotak Bank
38	9.116	Ambuja Cement	5458.643	Suzlon Energy Ltd	869.393	Tata Power	9.575	R Infra
39	9.057	RPL	5288.697	PGCI	865.983	IDEA	8.873	ICICI Bank
40	8.863	ITC	4872.749	Ranbaxy	833.966	Cipla	8.211	Sterlite
41	8.451	R Com	4822.363	Cipla	776.575	Siemens Ltd	6.439	R Com
42	8.324	DLF	3213.029	HCL	754.453	IDFC LTD	4.568	Ranbaxy
43	6.868	Sterlite India	2845.919	IDFC LTD	720.597	Unitech Ltd	1.275	RPL
44	6.373	JP ASSOCIATE	2837.652	DLF	698.367	Reliance Capital	0.000	ABB
45	5.589	Unitech Ltd	2691.805	Sun Pharma	435.098	Ranbaxy	0.000	ACC
46	5.019	Kotak Bank	2636.466	Kotak Bank	346.181	Kotak Bank	0.000	AMBUJA CEMENT
47	3.662	PGCI	2156.833	Reliance Capital	313.373	ABB	0.000	AXIS BANK
48	2.865	IDEA	2077.625	Unitech Ltd	176.498	RPL	0.000	HCL
49	-0.037	Cairne India	2.911	Cairne India Ltd	-6.747	Cairne India Ltd	-0.091	Cairne India Ltd
50	-0.805	Suzlon	2.850	RPL	-147.129	Suzlon	-0.536	Suzlon

Source: Data of company collected from www.Capitalline.com

**INTERPRETATION**

From the above table no.1 rank is based on weighted average of EPS, the SBI bank stands first is 124.835 which is followed by the Infosys, Punjab bank, RIL, ONGC, BHEL, Hero Honda, ACC, L&T, Tata steel, etc. On the basis of Weighted average of Sales RIL has highest rank is 151754.667 which is followed by BPCL, ONGC, SBI, SAIL, NTPC, L&T, Tata motors, Airtel, ICICI, etc. In respect of weighted average of Net profit ONGC becomes the first in its position 16206.389 which is followed by RIL, L&T, NTPC, SBI, Airtel, SAIL, Infosys, Tata steels, TCS, etc. According to return on net worth, HUL stands in rank one is 91.899 and HEROHONDA on next rank then followed by TCS, Unitech, Infosys, simens, Airtel, Jindal, Wipro, ITC, etc.

TABLE – 2: THE RANKING ARRIVED BASED ON AGGREGATE WEIGHTED AVERAGES

COMPANY	Ranks in EPS, Sales, Net Profit,			Return on Network	
	EPS	Sales	Net Profit	RONW	TOTAL
ONGC	5	3	1	16	25
Larsen & Toubro	9	7	3	13	32
Infosys Tech	2	18	8	5	33
RIL	4	1	2	27	34
SBI	1	4	5	29	39
BHEL	6	11	14	12	43
TCS	16	15	10	3	44
Bharti Airtel	27	9	6	7	49
Tata Steel	10	12	9	18	49
SAIL	29	5	7	11	52
Hero Honda	7	23	26	2	58
Punjab National Bank	3	25	15	17	60
Wipro	25	16	12	9	62
Maruti Suzuki India Ltd	11	13	21	22	67
GAIL (India) Ltd	23	14	16	20	73
Bharat Petroleum Corporation Ltd.	18	2	28	26	74
HUL	35	19	20	1	75
Tata Motors	19	8	23	25	75
NTPC	36	6	4	31	77
ICICI Bank	20	10	11	39	80
HDFC Bank	13	22	18	28	81
ITC	40	20	13	10	83
Jindal Steel	12	36	31	8	87
M & M	24	21	29	14	88
HDFC Fin – Hou	28	27	17	24	96
Siemens Ltd	22	29	41	6	98
Hindalco	32	17	19	34	102
ABB	31	37	1	44	113
AXIS Bank	14	28	24	47	113
ACC	8	32	30	45	115
R Infra	15	31	34	38	118
Tata Power	17	35	38	36	126
R Communications	42	24	22	41	129
Sun Pharmaceutical	37	45	36	15	133
Cipla	33	41	40	21	135
JP Associate	44	34	33	25	136
DLF	42	44	32	19	137
Unitech Ltd	45	48	43	4	140
IDFC Ltd	26	43	42	30	141
PGCI (Power Grid Corporation of India Ltd)	47	39	25	32	143
Ambuja Cement	38	33	27	46	144
Sterlite India	43	26	37	40	146
Reliance Capital	21	47	44	35	147
IDEA Cellular	48	30	39	33	150
HCL technology ltd	30	42	35	48	155
Ranbaxy Laboratories Ltd	34	40	45	42	161
Kotak Bank	46	47	46	37	176
Reliance Power Ltd	39	50	48	43	180
Suzlon Energy Ltd	50	38	50	50	188
Cairne India Ltd	49	49	49	49	196

**INTERPRETATION**

On the grand total of the parameters from the above table no.2, ranks are disclosed that ONGC stands first, which is followed by LNT, Infosys, RIL, SBI, BHEL, TCS, Airtel, Tata steels, Sail, Hero Honda, Punjab National Bank, Wipro, Maruti, Gail, etc.,

\*The above mentioned are top ranked securities.

TABLE - 3

STOCKS	RETURN
Unitech Ltd	128.1899396
Reliance Capital	69.21870372
Tata Motors	67.62084015
IDFC Ltd	59.853581
Larsen & Toubro	52.47982261
SAIL	48.98766952
AXIS Bank	47.70164887
Tata Power	44.84174059
ICICI Bank	42.8910775
Sterlite India	42.4331431
Tata Steel	41.7257453
HDFC Fin – Hou	41.07967426
HCL technology Ltd	39.7143373
Cairne India Ltd	39.25158276
Kotak Bank	38.9398116
R Infra	36.86669074
Maruti Suzuki India Ltd	35.65753712
HDFC Bank	35.32274241
Hero Honda	35.28564015
Sun Pharmaceutical	35.03378976
SBI	34.58814347
ACC	31.67543768
Punjab National Bank	30.95537808
Cipla	28.26783959
ABB	27.34668021
Siemens Ltd	25.59270603
RIL	24.20860552
GAIL (India) Ltd	23.77705178
Bharti Airtel	23.58622914
JP Associate	22.02018845
NTPC	21.36335307
Wipro	21.0023895
HUL	19.54928909
Hindalco	18.37560586
Ranbaxy Laboratories Ltd	14.70831256
Infosys Tech	12.13201698
Bharat Petroleum Corporation Ltd.	11.24970371
Ambuja Cement	11.20563009
BHEL	9.68444462
ONGC	9.40154794
M & M	7.22240497
DLF	5.34215616
Jindal Steel	2.20874897
R Communications	-2.76144497
IDEA Cellular	-6.87599119
ITC	-7.92458089
PGCI(Power Grid Corporation of India Ltd)	-8.34809202
Reliance Power Ltd	-10.8979508
TCS	-17.4228325
Suzlon Energy Ltd	-27.7599395

**INTERPRETATION**

From the above table no.3, it is depicted that the security **Unitech** more than the half of the investment is earned annually is **128.18993960** which considers that it has the highest return among the selected securities.

TABLE-4

STOCKS	$\sigma_i^2$	BETA	$B^2$	$\sigma_m^2$	Systematic	Unsystematic
ABB	10.060077	0.823569	0.678265	3.284849	2.227999	7.832078
ACC	5.718074	0.783355	0.613645	3.284849	2.015732	3.702342
Ambuja Cement	11.078562	0.745617	0.555944	3.284849	1.826193	9.252369
Axis Bank	9.705511	0.054936	0.003018	3.284849	0.009913	9.695597
BHEL	7.894703	1.608975	2.5888	3.284849	8.503817	-0.609114
Bharat Petroleum Corporation Ltd.	6.866431	0.588148	0.345918	3.284849	1.136289	5.730142
Bharti Airtel	9.047526	0.155233	0.024097	3.284849	0.079156	8.96837
Cairne India Ltd	9.052882	0.950044	0.902584	3.284849	2.964853	6.088029
Cipla	6.913212	0.58832	0.346121	3.284849	1.136954	5.776258
DLF	8.293085	1.586738	2.517739	3.284849	8.270393	0.022692
GAIL (India) Ltd	6.799178	0.842969	0.710597	3.284849	2.334206	4.464973
HCL technology Ltd	10.333973	1.000139	1.000279	3.284849	3.285764	7.048209
HDFC Bank	5.721813	0.920333	0.847012	3.284849	2.782308	2.939506
Hero Honda	4.976923	0.547974	0.300275	3.284849	0.986359	3.990564
Hindalco	15.217519	1.215765	1.478085	3.284849	4.855288	10.362231
HUL	4.273614	0.568146	0.32279	3.284849	1.060318	3.213296
HDFC Fin – Hou	109.916128	0.996506	0.993024	3.284849	3.261934	106.654194
IDFC Ltd	15.187348	0.033589	0.001128	3.284849	0.003706	15.183641
ITC	11.544674	0.66762	0.445717	3.284849	1.464113	10.080561
ICICI Bank	9.679391	1.333076	1.777091	3.284849	5.837477	3.841914
IDEA Cellular	10.761334	1.034825	1.070862	3.284849	3.51762	7.243714
Infosys Tech	6.123996	0.74506	0.555114	3.284849	1.823465	4.300531
Jindal Steel	20.842149	5.029839	25.299279	3.284849	83.104318	-62.262169
JP Associate	21.152833	1.648036	2.716022	3.284849	8.921723	12.23111
Kotak Bank	14.905484	1.195643	1.429561	3.284849	4.695893	10.209591
Larsen & Toubro	10.441743	1.117558	1.248935	3.284849	4.102564	6.339179
M & M	14.359888	0.136981	0.018764	3.284849	0.061636	14.298252
Maruti Suzuki India Ltd	5.7593	0.811118	0.657912	3.284849	2.161142	3.598159
NTPC	4.75351	0.803712	0.645953	3.284849	2.121857	2.631652
ONGC	9.718491	0.92327	0.852427	3.284849	2.800094	6.918396
PGCI(Power Grid Corporation of India Ltd)	5.427796	0.758664	0.575571	3.284849	1.890664	3.537131
Punjab National Bank	6.824818	0.056386	0.003179	3.284849	0.010444	6.814374
Ranbaxy Laboratories Ltd	9.397955	0.727323	0.528999	3.284849	1.737683	7.660272
R Communications	16.070169	1.416149	2.005477	3.284849	6.587691	9.482478
RIL	8.233647	1.157005	1.338661	3.284849	4.3973	3.836347
R Infra	13.004998	0.096277	0.009269	3.284849	0.030448	12.97455
Reliance Capital	15.268508	1.587295	2.519505	3.284849	8.276193	6.992315
Reliance Power Ltd	11.714845	1.070624	1.146236	3.284849	3.765211	7.949634
Siemens LTD	14.199269	1.058892	1.121251	3.284849	3.683141	10.516127
SBI	6.61241	1.057847	1.11904	3.284849	3.675879	2.936531
SAIL	11.309794	1.352698	1.829793	3.284849	6.010594	5.2992
Sterlite India	20.034977	1.354059	1.833477	3.284849	6.022694	14.012283
Sun Pharmaceutical	8.887598	0.489663	0.23977	3.284849	0.787609	8.099989
Suzlon Energy Ltd	21.298866	1.52667	2.330721	3.284849	7.656067	13.642798
TCS	9.006015	0.863378	0.745422	3.284849	2.448598	6.557417
Tata Motors	9.046375	1.109531	1.23106	3.284849	4.043847	5.002528
Tata Power	7.325653	0.959894	0.921397	3.284849	3.02665	4.299003
Tata Steel	10.615811	1.333962	1.779455	3.284849	5.845241	4.77057
Unitech Ltd	28.353737	1.390386	1.933174	3.284849	6.350185	22.003552
Wipro	8.858219	0.942564	0.888428	3.284849	2.918351	5.939869

## INTERPRETATION

Tata steels has got highest risk among the securities, wherein total risk of HDFC Fin – Hou is 109.91612847617, in which systematic risk is 3.261934413997 and unsystematic risk is 106.65419406218. Second highest risk is Unitech, it has total risk of 28.353737290643 where 6.3501849619094 as systematic risk and 22.003552328734 as unsystematic risk. Third highest risk is Suzlon Energy, It has Total risk of 21.298865505544 where 7.6560674608552 as systematic risk and 13.64279804468 as unsystematic risk.

TABLE- 5

COMPANY	Ri	Rf	BETA	Ri-Rf	Ri-Rf/ $\beta$	Rank
IDFC Ltd	264.46873946	6	0.03358943	258.46873946	7694.94273145	1
NTPC	1990.72215667	6	0.80371182	1984.72215667	2469.44504107	2
Punjab National Bank	133.72483952	6	0.05638617	127.72483952	2265.18024210	3
AXIS Bank	110.99902177	6	0.05493584	104.99902177	1911.30279467	4
HUL	738.72136113	6	0.56814650	732.72136113	1289.66976667	5
ITC	849.49501116	6	0.66762036	843.49501116	1263.43511883	6
SAIL	1284.13645871	6	1.35269841	1278.13645871	944.87910277	7
ONGC	731.43863151	6	0.92326974	725.43863151	785.72772441	8
PGCI (Power Grid Corporation of India Ltd)	495.44587513	6	0.75866406	489.44587513	645.14177357	9
R Infra	60.01998980	6	0.09627679	54.01998980	561.09046868	10
Ambuja Cement	368.88311832	6	0.74561659	362.88311832	486.68863269	11
M & M	69.93384779	6	0.13698067	63.93384779	466.73627453	12
GAIL (India) Ltd	339.72646460	6	0.84296945	333.72646460	395.89390069	13
Bharti Airtel	44.91465524	6	0.15523287	38.91465524	250.68565751	14
Hero Honda	121.01709966	6	0.54797382	115.01709966	209.89524592	15
Wipro	203.58006467	6	0.94256434	197.58006467	209.61971051	16
HCL technology ltd	214.61673399	6	1.00013926	208.61673399	208.58768683	17
Tata Motors	225.28639063	6	1.10953147	219.28639063	197.63873079	18
Tata Steel	267.40115372	6	1.33396210	261.40115372	195.95845663	19
TCS	168.64391483	6	0.86337811	162.64391483	188.38086538	20
ICICI Bank	253.16228647	6	1.33307592	247.16228647	185.40750962	21
Bharat Petroleum Corporation Ltd.	105.64686154	6	0.58814802	99.64686154	169.44280240	22
Hindalco	203.03152587	6	1.21576533	197.03152587	162.06378109	23
RIL	179.36779680	6	1.15700523	173.36779680	149.84184387	24
SBI	158.32223646	6	1.05784710	152.32223646	143.99267811	25
Cipla	86.97521142	6	0.58832019	80.97521142	137.63799547	26
Siemens Ltd	126.26840022	6	1.05889152	120.26840022	113.57952919	27
Unitech Ltd	160.97783012	6	1.39038625	154.97783012	111.46386876	28
Infosys Tech	86.64441652	6	0.74505956	80.64441652	108.23888511	29
Sun Pharmaceutical	56.31954583	6	0.48966338	50.31954583	102.76354726	30
ACC	80.49045237	6	0.78335507	74.49045237	95.09155634	31
HDFC Fin – Hou	94.25524361	6	0.99650593	88.25524361	88.56469476	32
Larsen & Toubro	94.14457831	6	1.11755770	88.14457831	78.87250796	33
DLF	127.63289567	6	1.58673844	121.63289567	76.65592053	34
HDFC Bank	71.41161990	6	0.92033270	65.41161990	71.07388466	35
Maruti Suzuki India Ltd	53.84373223	6	0.81111772	47.84373223	58.98494253	36
Tata Power	61.81545157	6	0.95989417	55.81545157	58.14750584	37
Sterlite India	83.58914282	6	1.35405932	77.58914282	57.30113998	38
Reliance Capital	96.19811405	6	1.58729476	90.19811405	56.82505644	39
JP Associate	92.03347141	6	1.64803585	86.03347141	52.20364065	40
Ranbaxy Laboratories Ltd	35.66181060	6	0.72732337	29.66181060	40.78214998	41
Cairne India Ltd	39.25158276	6	0.95004434	33.25158276	35.00003246	42
Kotak Bank	45.73446134	6	1.19564254	39.73446134	33.23272630	43
R Communications	47.89465692	6	1.41614876	41.89465692	29.58351408	44
BHEL	41.44958856	6	1.60897476	35.44958856	22.03240807	45
ABB	13.08898107	6	0.82356851	7.08898107	8.60763981	46
Jindal Steel	6.95965958	6	5.02983884	0.95965958	0.19079330	47
IDEA Cellular	-6.87599119	6	1.03482457	-12.87599119	-12.44268026	48
Reliance Power Ltd	-10.89795083	6	1.07062393	-16.89795083	-15.78327400	49
Suzlon Energy Ltd	-21.26104595	6	1.52666993	-27.26104595	-17.85654216	50

**INTERPRETATION**

Based on risk return analysis as per Sharpe model optimal portfolio construction IDFC has the highest ratio, followed by NTPC, PNB, AXIS Bank, HUL, ITC, SAIL, ONGS, PGCI, R Infra, Ambuja Cement, M&M, GAIL, Bharati Airtel, and Hero Honda etc.

The above table 4 discloses that the higher the risk premium to beta, the higher the efficiency. IDFC stands first in the ranking of (i.e. excess of return over risk free return to beta) risk premium to beta because of the highest. This is followed by NTPC, PNB, AXIS BANK, HUL, ITC, SAIL, ONGC, PGCI, R INFRA, etc.

CONTINUE...

COMPANY	(Ri- Rf) $\beta/\sigma_{ei2}$	$\sum(Ri-Rf) \beta/\sigma_{ei2}$	$\beta^2/\sigma_{ei2}$	$\sum \beta^2/\sigma_{ei2}$	$\sigma_{m2}$	$\sigma_{m2}\sum(Ri-Rf)\beta/\sigma_{ei2}$	$\sigma_{m2}\sum(\beta^2/\sigma_{ei2})$	Ci
IDFC Ltd	0.57178758	0.572	0.00007431	0.00007431	3.28484929	1.878236028	0.000244087	1.877777687
NTPC	606.13804460	607	0.24545517	0.24552947	3.28484929	1992.950362	0.806527318	1103.194146
Punjab National Bank	1.05687101	608	0.00046657	0.24599605	3.28484929	1996.422024	0.808059938	1104.179116
AXIS Bank	0.59493079	608	0.00031127	0.24630732	3.28484929	1998.376282	0.809082413	1104.635293
HUL	129.55328837	738	0.10045462	0.34676194	3.28484929	2423.939309	1.139060705	1133.179298
ITC	55.86340057	794	0.04421549	0.39097743	3.28484929	2607.442161	1.28430192	1141.461266
SAIL	326.26305336	1120	0.34529608	0.73627351	3.28484929	3679.16712	2.418547514	1076.236941
ONGC	96.81080851	1217	0.12321165	0.85948516	3.28484929	3997.176036	2.823279212	1045.483684
PGCIL(Power Grid Corporation of India Ltd)	104.97914057	1322	0.16272259	1.02220775	3.28484929	4342.016691	3.357798398	996.378514
R Infra	0.40085177	1322	0.00071442	1.02292216	3.28484929	4343.333429	3.360145145	996.1442302
Ambuja Cement	29.24350236	1351	0.06008668	1.08300884	3.28484929	4439.393927	3.557520821	974.0808877
M & M	0.61250153	1352	0.00131231	1.08432115	3.28484929	4441.405902	3.561831554	973.6014691
GAIL (India) Ltd	63.00625617	1415	0.15914935	1.24347050	3.28484929	4648.371958	4.084613177	914.2036565
Bharti Airtel	0.67357096	1416	0.00268691	1.24615741	3.28484929	4650.584537	4.093439286	913.0538868
Hero Honda	15.79384887	1432	0.07524634	1.32140375	3.28484929	4702.464951	4.34061217	880.5104735
Wipro	31.35286772	1463	0.14957023	1.47097398	3.28484929	4805.454396	4.831927825	823.990718
HCL technology Ltd	29.60266796	1493	0.14191954	1.61289351	3.28484929	4902.694699	5.298112116	778.4387779
Tata Motors	48.63644147	1541	0.24608760	1.85898112	3.28484929	5062.458079	6.106472803	712.3728211
Tata Steel	73.09383518	1614	0.37300679	2.23198791	3.28484929	5302.560312	7.331743898	636.4286249
TCS	21.41440601	1636	0.11367612	2.34566403	3.28484929	5372.903408	7.705152822	617.2095445
ICICI Bank	85.76092565	1721	0.46255368	2.80821771	3.28484929	5654.615124	9.224571946	553.0417463
Bharat Petroleum Corporation Ltd.	10.22786259	1732	0.06036815	2.86858586	3.28484929	5688.212111	9.422872234	545.7432446
Hindalco	23.11703895	1755	0.14264161	3.01122747	3.28484929	5764.1481	9.891428432	529.2371094
RIL	52.28604796	1807	0.34894157	3.36016904	3.28484929	5935.899887	11.03764889	493.1112329
SBI	54.87210983	1862	0.38107569	3.74124474	3.28484929	6116.146499	12.28942512	460.2265669
Cipla	8.24744231	1870	0.05992126	3.80116600	3.28484929	6143.238104	12.48625743	455.5183775
Siemens LTD	12.11008426	1882	0.10662207	3.90778807	3.28484929	6183.017905	12.83649486	446.863022
Unitech Ltd	9.79292072	1892	0.08785736	3.99564542	3.28484929	6215.186174	13.12509303	440.0102826
Infosys Tech	13.97150586	1906	0.12908028	4.12472570	3.28484929	6261.080465	13.5491023	430.3413596
Sun Pharmaceutical	3.04193498	1909	0.02960130	4.15432701	3.28484929	6271.072763	13.64633812	428.1665977
ACC	15.76096141	1925	0.16574512	4.32007213	3.28484929	6322.845146	14.19078586	416.2289695
HDFC Fin – Hou	0.82459836	1926	0.00931069	4.32938282	3.28484929	6325.553827	14.22137007	415.5705956
Larsen & Toubro	15.53933869	1941	0.19701844	4.52640126	3.28484929	6376.598213	14.86854597	401.8388469
DLF	8505.10238449	10446	110.95166982	115.47807108	3.28484929	34314.57775	379.3280599	90.22362893
HDFC Bank	20.47978686	10467	0.28814785	115.76621893	3.28484929	34381.85076	380.2745821	90.17608928
Maruti Suzuki India Ltd	10.78521087	10478	0.18284685	115.94906578	3.28484929	34417.27855	380.8752065	90.12703095
Tata Power	12.46263903	10490	0.21432801	116.16339379	3.28484929	34458.21644	381.5792417	90.06818115
Sterlite India	7.49772925	10498	0.13084782	116.29424161	3.28484929	34482.84535	382.009057	90.03140975
Reliance Capital	20.47547815	10518	0.36032482	116.65456643	3.28484929	34550.10421	383.1926698	89.92910832
JP Associate	11.59226350	10530	0.22205853	116.87662495	3.28484929	34588.18305	383.9220986	89.85761842
Ranbaxy Laboratories Ltd	2.81631356	10532	0.06905751	116.94568246	3.28484929	34597.43422	384.1489421	89.82871414
Cairne India Ltd	5.18895032	10538	0.14825559	117.09393804	3.28484929	34614.47914	384.6359393	89.75947418
Kotak Bank	4.65329226	10542	0.14002138	117.23395943	3.28484929	34629.7645	385.0958885	89.69213488
R Communications	6.25670469	10549	0.21149295	117.44545238	3.28484929	34650.31683	385.7906109	89.58417256
BHEL	-93.64009092	10455	-4.25010696	113.19534541	3.28484929	34342.72325	371.8296501	92.11371263
ABB	0.74542940	10456	0.08660091	113.28194632	3.28484929	34345.17187	372.114121	92.05004565
Jindal Steel	-0.07752594	10456	-0.40633469	112.87561163	3.28484929	34344.91721	370.7793728	92.37983525
IDEA Cellular	-1.83944192	10454	0.14783325	113.02344489	3.28484929	34338.87492	371.2649828	92.24309702
Reliance Power Ltd	-2.27574644	10451	0.14418722	113.16763211	3.28484929	34331.39944	371.7386161	92.10582955
Suzlon Energy Ltd	-3.05059262	10448	0.17083893	113.33847104	3.28484929	34321.3787	372.2997962	91.94052354

## INTERPRETATION

Based on Sharpe's model optimal portfolio construction the first six securities have been chosen as they are in ascending order, there after it has been declining. The first six securities namely IDFC, NTPC, PNB, AXIS BANK, HUL, ITC have been consider for portfolio construction.

Table No6 speaks that C\* helps in determining cut-off point at which securities listed from above will be selected for portfolio construction. While calculating C\* as per Sharpe model, only first six securities namely IDFC, NTPC, PNB, AXIS BANK, HUL, and ITC are selected for building Optimum Portfolio Construction. The C\* increases from 1.877777687 to 1141.461266 and thereafter it decreases. Hence, IDFC TO ITC securities are chosen.

TABLE- 6

COMPANY	$\beta/\sigma_{ei}^2$	$[(R_i - R_f)/\beta - C_i]$	Zi	Xi
IDFC Ltd	0.002212212	7693.064954	17.01868863	0.035148111
NTPC	0.305401964	1366.250895	417.2557066	0.86174384
Punjab National Bank	0.008274593	1161.001126	9.606811326	0.019840617
Axis Bank	0.00566606	806.6675012	4.570626681	0.009439558
HUL	0.176811125	156.4904682	27.66925578	0.057144361
ITC	0.06622849	121.9738532	8.078144065	0.016683513
SAIL	0.255264648	-131.3578385		
ONGC	0.13345141	-259.7559598		
PGCI	0.214485699	-351.2367404		
R Infra	0.007420434	-435.0537615		
Ambuja Cement	0.08058656	-487.392255		
M & M	0.009580239	-506.8651945		
GAIL (India) Ltd	0.188796104	-518.3097559		
Bharti Airtel	0.017308928	-662.3682293		
Hero Honda	0.137317398	-670.6152275		
Wipro	0.158684368	-614.3710075		
HCL technology ltd	0.141899777	-569.8510911		
Tata Motors	0.221794163	-514.7340903		
Tata Steel	0.279623231	-440.4701683		
TCS	0.131664354	-428.8286791		
ICICI Bank	0.346982247	-367.6342366		
BPCL	0.102641091	-376.3184422		
Hindalco	0.1173266	-367.1733283		
RIL	0.301590312	-343.269389		
SBI	0.360237028	-316.2338888		
Cipla	0.101851445	-317.880382		
Siemens Ltd	0.100692154	-333.2834928		
Unitech Ltd	0.063189172	-328.5464138		
Infosys Tech	0.173248273	-322.1024745		
Sun Pharmaceutical	0.060452354	-325.4030504		
ACC	0.211583645	-321.1374132		
HDFC Fin – Hou	0.009343336	-327.0059008		
Larsen & Toubro	0.176293755	-322.9663389		
DLF	69.92436	-13.5677084		
HDFC Bank	0.31309096	-19.10220462		
Maruti Suzuki India Ltd	0.225425784	-31.14208842		
Tata Power	0.223282956	-31.92067531		
Sterlite India	0.096633743	-32.73026977		
Reliance Capital	0.227005613	-33.10405187		
JP Associate	0.13474132	-37.65397776		
Ranbaxy Laboratories Ltd	0.094947459	-49.04656416		
Cairne India Ltd	0.156051228	-54.75944172		
Kotak Bank	0.117109736	-56.45940857		
R Communications	0.149343739	-60.00065848		
BHEL	-2.641500077	-70.08130456		
ABB	0.10515325	-83.44240584		
Jindal Steel	-0.080784832	-92.18904195		
IDEA Cellular	0.142858277	-104.6857773		
Reliance Power Ltd	0.134675883	-107.8891035		
Suzlon Energy Ltd	0.111902993	-109.7970657		

**INTERPRETATION**

As per Sharpe model, out of total investment 86.174% of total funds will be invested in NTPC. The second highest amount of investment made in HUL (5.714%) followed by IDFC (3.515%), PNB (1.984%), ITC (1.668%), AXIS BANK (0.944%).

The table No. speaks that Xi indicates percentage of funds to be distributed to six chosen securities. Out of the total investment, nearly 86.174% of funds is to be invested in NTPC, 5.714% in HUL, 3.515% in IDFC, 1.984% in PNB, 1.668% in ITC and 0.944% in AXIS BANK.

**FINDINGS AND CONCLUSION****FINDINGS**

1. ONGC Stand First Rank on the basis of the aggregate weighted average of EPS, Sales, Net profit, and RONW and Cairne India has the least rank.
2. On total return of securities, The Unitech Ltd company in Cement industry top in getting the highest returns followed by R-Capital, Tata motors, IDFC.
3. Based on Risk premium to beta ratio, IDFC Ltd.stands top in this ratio, which has been the for building Sharpe model. This has been followed by NTPC,PNB, AXIS BANK, HUL, and ITC.
4. On division of total risk between Systematic and Unsystematic risk, The HDFC Fin-Hou company has the highest amount of systematic risk and its unsystematic risk, is only 109.91612847617.The HUL company has the least systematic risk of 1.060317957227 and unsystematic risk of 3.21329609127.
5. IDFC, NTPC, PNB, AXIS Bank, HUL, & ITC are selected for building Optimum Portfolio Construction. The C\* increases from 1.877777687 to 1141.461266 and thereafter it decreases. Hence, IDFC to ITC securities are chosen.
6. Lion's share of total investment is to be made in NTPC.This is followed by HUL hardly about 5% and the rest are negligible.

**CONCLUSION**

The returns obtained by each of the companies and  $\beta_i$ , the sensitiveness of the stock return of the changes in the market returns is observed as shown in the above table. Also the portion in which the securities be invested to optimum return is also calculated and represented.

It is being assumed that casual observation of the stock prices over a period of time reveals that most the stock prices move the market index. When the S&P CNX Nifty increases, stock prices also tend to increase and vice-versa. This indicates that some underlying factors affect the market index as well as the stock prices. Stock prices are related to the market index and this relationship could be used to estimate the return on stock

Keeping all these assumptions in mind this portfolio has been constructed giving due consideration to the past five years performance of all the S&P CNX Nifty companies.

**REFERENCES****BOOKS**

1. Aswath Damodaran, Investment management, Second Edition, Wiley India private Limited, 2009.
2. Bernd, S., 2004, Portfolio Construction and Risk Budgeting, 2nd Edition, Risk books, Spain.
3. Gordon J.Alexander, William F. Sharpe and Jeffery V. Bailey, Fundamentals of Investment, PHI Learning Private Limited, 3<sup>rd</sup> Ed. New Delhi, 2008.
4. Gustafsson, J., and Salo, A., 2005, "Contingent Portfolio Programming for the Management of Risky Projects," Operations Research, 53, 946-956.
5. Hull, J. C., 2006, Options, Futures, and Other Derivatives, 6th Edition, Pearson Prentice Hall, New Jersey.
6. Prasanna Chandra, Investment Analysis and Portfolio management, Third Edition, Tata McGraw Hill Education Private Limited, New Delhi, 2008.
7. Zvi Bodie, Alex Kane, Alan J Marcus and Pitabas Mohanty, Investments, eighth Edition, Tata McGraw Hill Education Private Limited, New Delhi, 2009.

**JOURNALS**

8. Bilbao A, Arenas M, Jiménez M, Perez Gladish B, Rodríguez M V Journal:Journal of the Operational Research Society, Dec 2006, Volume: 57 Issue: 12 pp.1442-1451 (10 pages)
9. Journal of the Operational Research Society 57, 1442-1451 (December 2006) | doi:10.1057/palgrave.jors.2602133.
10. Pratibha Jenifer Andrade. Journal: International journal of applied financial management perspective.
11. Siddhant- A Journal of Decision Making(2011),PP 21-30, Volume : 11, Issue : 2.

**WEBSITES**

12. www.capitaline.com
13. www.economicstimes.com
14. www.investopedia.com
15. www.nseindia.com
16. www.wikipedia.com

**A STUDY ON EMPLOYEE ENGAGEMENT OF SELECT PLANT MANUFACTURING COMPANIES OF RAJASTHAN****VEDIKA SHARMA****ASST. PROFESSOR****RAJASTHAN INSTITUTE OF ENGINEERING & TECHNOLOGY****JAIPUR****SHUBHASHREE SHARMA****LECTURER****RAJASTHAN INSTITUTE OF ENGINEERING & TECHNOLOGY****JAIPUR****ABSTRACT**

*Employee engagement is the level of commitment and involvement an employee has towards their organization and its values. An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefit of the organization. The organization must work to develop and nurture engagement, which requires a two-way relationship between employer and employee. It is a positive attitude held by the employees towards the organization and its values. The study is descriptive in nature and the data was collected through self-designed questionnaire survey of select plant manufacturing companies of Rajasthan. Hypothesis is tested using Two Way ANOVA (Analysis of Variance) Test. The study suggests ways to improve employee engagement in the companies and employees actively engaged in the companies are quick achievement of personal as well as organisational goals. Thus Employee engagement is a barometer that determines the association of a person with the organization.*

**KEYWORDS**

Barometer, Engagement, relationship, values.

**INTRODUCTION**

An engaged employee is a person who is fully involved in, and enthusiastic about, his or her work. Engagement at work was conceptualized by Kahn, (1990) as the 'harnessing of organizational members' selves to their work roles. In engagement, people employ and Express themselves physically, cognitively, and emotionally during role performances. Employee engagement also affects the mind-set of people. Engaged employees believe that they can make difference in the organizations they work for. Confidence in the knowledge, skills, and abilities that people possession both themselves and others is a powerful predictor of behaviour and subsequent

**CATEGORIES OF EMPLOYEE ENGAGEMENT**

**Engaged**— Engaged employees are builders. They want to know the desired expectations for their role so they can meet and exceed them. They're naturally curious about their company and their place in it. They perform at consistently high levels. They want to use their talents and strengths at work every day. They work with passion and they drive innovation and move their organization forward.

**Not Engaged**—Not-engaged employees tend to concentrate on tasks rather than the goals and outcomes they are expected to accomplish. They want to be told what to do just so they can do it and say they have finished. They focus on accomplishing tasks vs. achieving an outcome. Employees who are not-engaged tend to feel their contributions are being overlooked, and their potential is not being tapped. They often feel this way because they don't have productive relationships with their managers or with their co-workers.

**Actively Disengaged**—The actively disengaged employees are the "cave dwellers." They're "Consistently against Virtually Everything." They're not just unhappy work they're busy acting out their unhappiness. They sow seeds of negativity at every Opportunity. Every day, actively disengaged workers undermine what their engaged Co-workers accomplish. As workers increasingly rely on each other to generate products and services, the problems and tensions that are fostered by actively disengaged workers can cause great damage to an organization's functioning.

**REVIEW OF LITERATURE**

Employee engagement was described in the academic literature by Schmidt (1993). A modernized version of job satisfaction, Schmidt influential definition of engagement was "an employee's involvement with, commitment to, and satisfaction with work. Employee engagement is a part of employee retention." This integrates the classic constructs of job satisfaction (Smith 1969), and organizational commitment (Meyer & Allen, 1991). Harter and Schmidt's (2003) most recent meta-analysis can be useful for understanding the impact of engagement. The opposite of employee engagement is a zombie employee. Engagement is most closely associated with the existing construction of job involvement (Brown 1996) and flow (Csikszentmihalyi, 1990). Job involvement is defined as 'the degree to which the job situation is central to the person and his or her identity (Lawler & Hall, 1970). Kanungo (1982) maintained that job involvement is a 'Cognitive or belief state of Psychological identification. Job involvement is thought to depend on both need saliency and the potential of a job to satisfy these needs. Thus job involvement results form a cognitive judgment about the needs satisfying abilities of the job. Jobs in this view are tied to one's self-image. Engagement differs from job in as it is concerned more with how the individual employees his/her self during the performance of his / her job.

**IMPORTANCE OF THE STUDY**

This study is relevant in knowing the level of employee engagement among the employees of select plant manufacturing companies of Rajasthan and knowing the commitment of the employees towards the organization.

**STATEMENT OF THE PROBLEM**

The problem is that the employee engagement differs with the various designations and according to the position people have in the organization.

**OBJECTIVES OF THE STUDY**

The main objective of the study was to find out the level of the level of Employee Engagement of selected plant manufacturing companies. The secondary objectives are as follows:

- To measure age wise employee engagement
- To measure designation wise employee engagement level of selected plant manufacturing companies.
- To measure experience wise employee engagement level of selected companies.
- To measure department wise employee engagement level of selected companies.

**HYPOTHESIS**

**H1:** Scores of factors affecting Employee Engagement does not differ within various designations and years of experience

**H2:** There would be no significant difference in the Scores of factors affecting Employee Engagement does not differ within various designations and salary structures.

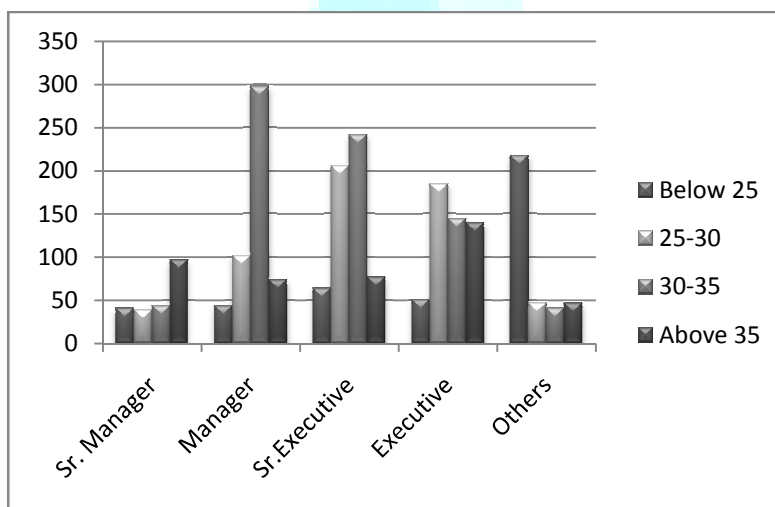
**H3:** There would be no significant difference in the Scores of factors affecting Employee Engagement does not differ within various designations and Departments

**RESEARCH METHODOLOGY**

In present research five plant manufacturing companies were selected from different parts of Rajasthan. The study is based on primary data through self-administered questionnaire filled by the employees of manufacturing companies of Rajasthan and is descriptive in nature.

**TABLE 1: DESIGNATION AND EXPERIENCE WISE SCORE OF EMPLOYER**

Experience	Sr. Manager	Manager	Sr.Executive	Executive	Others
Below 25	41	44	64	51	218
25-30	39	102	206	185	47
30-35	44	298	242	145	41
Above 35	97	74	77	140	47
Total	221	518	589	521	353
No of employees	7	11	15	10	7

**TABLE 2: TWO WAY ANNEXURE**

Source of Variation	SS	Df	MS	Feritt
Rows	452370.2	4	113092.5	3.0068917382
Columns	72300.16	4	18075.04	3.006917382
Error	12293		7682.69	
Total	647593.4	24		

At 5% level of significance

**FINDINGS**

It can be revealed from Table 2 that row wise F calculated value is greater than F critical Value so the hypothesis is rejected and there is a significant difference among years of experience. It can also be revealed that column wise F calculated value is lower than F critical value so null Hypothesis is accepted and is no significance difference among various designations.

**TABLE 3: DESIGNATION AND SALARY WISE SCORE OF EMPLOYER**

Salary	Sr. Manager	Manager	Sr.Executive	Executive	Others
Below 1,00,000	44	47	57	50	133
100,000-7,50,000	82	91	177	289	126
7,50,000-15,00,000	83	279	371	76	47
Above 15,00,000	56	51	39	47	55
Total	265	468	644	462	361
No of employees	7	11	15	10	7

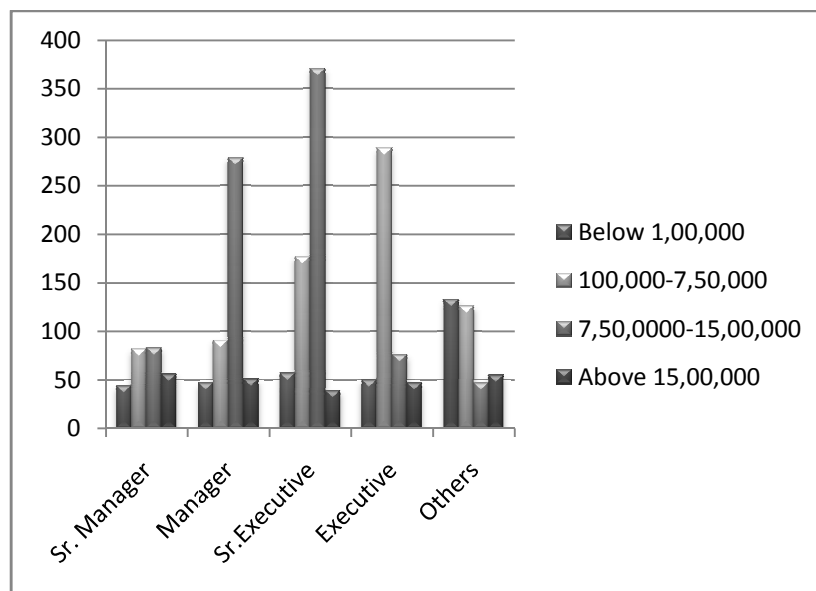


TABLE 4: TWO WAY ANNEXURE

Source of Variation	SS	Df	MS	F	Feritt
Rows	491405.2	4	1288513	14.6353	3.0068917382
Columns	63800	4	15950	1.900127	3.006917382
Error	13430.68	16	839.175		
Total	647593.4	24			

**FINDINGS**

It can be revealed from Table 4 that row wise F calculated value is greater than F critical Value so the hypothesis is rejected and there is a significant difference among salary structure. It can also be revealed that column wise F calculated value is lower than F critical value so the null hypothesis is accepted and there is no significance difference among various designations.

TABLE 5: DESIGNATION AND DEPARTMENT WISE SCORE OF EMPLOYER

Departments	Sr. Manager	Manager	Sr. Executive	Executive	Others
Training Center	83	46	65	57	200
Production	41	51	210	177	38
Maintenance	47	141	230	150	42
Stores	138	51	80	132	47
Total	309	468	644	452	361
No of employees	7	11	15	10	7

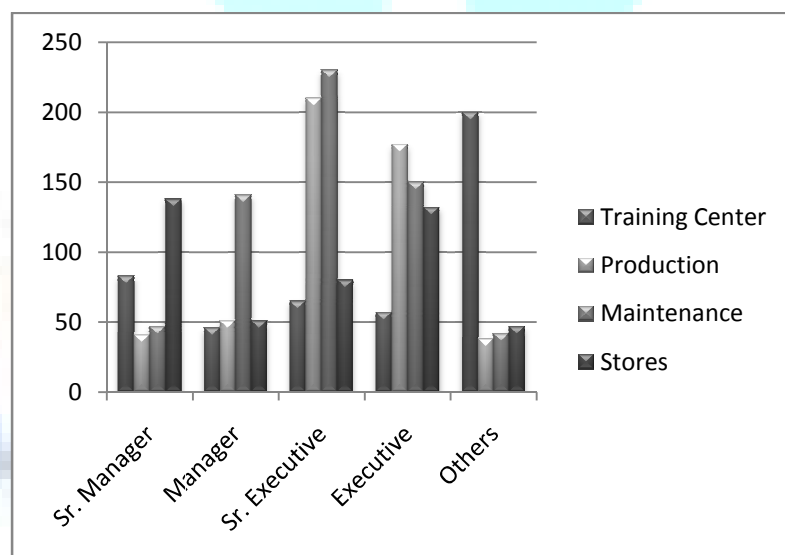


TABLE 6: TWO WAY ANNEXURE

Source of Variation	SS	Df	MS	F	Feritt
Rows	469152.6	4	117288.2	9.774942	3.0068917382
Columns	85128.64	4	21282.16	1.773682	3.006917382
Error	191981.8	16	7682.69		
Total	74623	24			

At 5% level of Significance

#### FINDINGS

It can be revealed from the table that row wise F calculated value is greater than F critical value so the hypothesis is rejected and there is a significant difference among the departments. It can also be revealed that column wise F calculated value is lower than F critical value so null Hypothesis is accepted and there is no significant difference among various designations.

## RESULTS AND DISCUSSION

Analysis of the scores given by employees about the factors affecting employee engagement with various designations and years of experience

#### (Refer table 1)

Among employees with experience of below 25 years. Sr. managers below 25 has given the score of 41, Managers has given the score 44, Sr. Executives has given the score 64, Executives has given the score 51 and others i.e. accountants, clerks and other junior staff has given the score 218

Employees with experience of 25 to 30 years. Sr. Managers has given the score of 39, Managers has given the score 102, Sr. Executives has given the score 206, Executives has given the score 185 and others i.e. accountants, clerks and other junior staff has given the score 218

Employees with experience of 30-35 years. Sr. managers has given the score of 44, Managers has given the score 298, Sr. Executives has given the score 242, Executives has given the score 145 and others i.e. accountants, clerks and other junior staff has given the score 41

Employees with experience of above 35 years. Sr. managers has given the score of 97, Managers has given the score 74, Sr. Executives has given the score 77, Executives has given the score 140 and others i.e. accountants, clerks and other junior staff has given the score 47

#### (Refer table 3)

Analysis of the scores given by employees about the factors affecting employee engagement with various designations and Salary Structure

Below the salary of Rs. 1,00,000 per month, Sr. Managers has given the score of 44, Managers has given the score 47, Sr. Executive has given the score 57, Executives has given the score 50 and others i.e. accountants, clerks and other junior staff has given the score 133

In salary structure between Rs. 1,00,000 to Rs. 7,50,000, Sr. Managers has given the score 82, Managers has given the score 91, Sr. Managers has given the score 177, Executives has given the score 289 and others i.e. accountants, clerks and other junior staff has given the score 126

In salary structure between Rs. Rs. 7,50,000 to 15,00,000, Sr. Managers has given the score 83, Managers has given the score 279, Sr. Managers has given the score 371, Executives has given the score 76 and others i.e. accountants, clerks and other junior staff has given the score 47

In salary structure between above Rs.15,00,000, Sr. Managers has given the score 56, Managers has given the score 51, Sr. Managers has given the score 39, Executives has given the score 47 and others i.e. accountants, clerks and other junior staff has given the score 55

#### (Refer table 5)

Analysis of the scores given by employees about the factors affecting employee engagement with various designations and department

In training Center, Sr Managers has given the score 83, Managers has given the score 46, Sr. Executives has given the score 52, Executives has given the score 168 and others i.e. accountants, clerks and other junior staff has given the score 75

In production department, Sr Managers has given the score 41, Managers has given the score 51, Sr. Executives has given the score 485, Executives has given the score 155 and others i.e. accountants, clerks and other junior staff has given the score 57

In Maintenance Department, Sr Managers has given the score 47, Managers has given the score 144, Sr. Executives has given the score 144, Executives has given the score 57 and others i.e. accountants, clerks and other junior staff has given the score 144

In stores Department, Sr Managers has given the score 138, Managers has given the score 173, Sr. Executives has given the score 101, Executives has given the score 50 and others i.e. accountants, clerks and other junior staff has given the score 49

## RECOMMENDATIONS /SUGGESTIONS

The following suggestions can be taken into consideration have proper employee engagement in the organizations.

There should be proper planning of hiring the right employee for the right job so that employees remain contented with their work and employer.

A business should hire a professional consulting company to issue surveys to employees before making improvements to increase employee engagement

Employers should provide openness transparency and fairness when dealing with the workers.

Employees expect fair compensation for their work and business owners should provide producing employees with bonuses. This compensation should also include pay increases and better positions for employees who consistently exceed expectations. Employers should offer compensation that involves employees in the future of the company, such as offering stock options and profit sharing.

Employees appreciate recreational activities their employer offers, such as a company barbeque and volunteer activities in which management and business owners participate. These activities allow management to form a personal bond with employees, which increases the emotional satisfaction of their workers.

Businesses with employees who take care of dependents should provide them with flexitime or a compressed workweek and generous leave benefits to increase engagement, according to the Families and Work Institute. Flexitime allows employees to modify the hours they work and a compressed workweek allows them to accomplish weekly work in four days instead of five.

## CONCLUSION

An engaged employee is a person who is fully involved in, and enthusiastic about, his or her work. Employee engagement also affects the mind-set of people. Engaged employees believe that they can make a difference in the organizations they work for. Confidence in the knowledge, skills, and abilities that people possess in both themselves and others and are a powerful predictor of behavior and subsequent performance.

It can be concluded from the study that majority of the employees are above the age of 45 years and they have experienced of more than 20 years in their companies. Employees always have a chance of their career development in their companies because of good and cooperative management teams. And it can also be said that as the employees are actively engaged in their companies, there is a quick achievement of personal as well as company's goal. The ratio of engaged employee increases in the selected companies because of the favorable management policy, good working environment and cordial relation among every one. Thus it is a positive attitude held by the employees towards the Organization and its values.

## LIMITATIONS OF THE STUDY

- The study is limited to the boundaries of Rajasthan only.
- In convenience sampling the problem of representativeness might occur.
- It was found during the filling up of the questionnaire that some of the employees were hesitating to give correct answer of the questions.
- To formulate and calculate hypothesis took more time but it was necessary in order to get some accurate results.

**SCOPE FOR FURTHER RESEARCH**

The scope of the study is wide. It gives a comprehensive platform of information and facts about Employee Engagement on and its effectiveness which has now becomes the prime factor for every organization. The milieu of the study is limited to Rajasthan.

**REFERENCES**

1. Ayers, Keith (2008). Engagement Is Not Enough: You Need Passionate Employees to Achieve Your Dream.
2. Brady, Chris & MacLeod, David (2008). The Extra Mile - How to Engage Your People to Win.
3. Harter, James K.; Schmidt, Frank L.; Hayes, Theodore L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*. Vol 87(2), Apr 2002, pp. 268-279
4. Johnson, Rebecca (2006) Singular focus (employee engagement), IN *People Management*, Vol 12 No 18 14 Sep 2006, pp36,38
5. Kahn, William A. (1990). Psychological Conditions of Personal Engagement and Disengagement at Work. *The Academy of Management Journal*, Vol. 33, No. 4 (Dec., 1990)
6. Karsan, Rudy & Kruse, Kevin (2011). WE - How to Increase Performance and Profits through Full Engagement.
7. Macey, Schneider (2008). The meaning of employee engagement. *Industrial Organizational Psychology*.
8. MacLeod, David & Clarke, Nita (2009). Engaging for Success: enhancing performance through employee engagement.
9. McGee, Lucy (2006) How to interview for engagement, IN *People Management*, 27 Jul 2006, pp 40-41
10. McKay, Avery, & Morris (2008). Mean racial and ethnic differences in sales performance: The moderating role of diversity climate. *Personnel Psychology*, pp 61, 349-374.
11. McKenzie, Alasdair (2003) Reason, purpose and value IN *Interviews on Communications and HR* pp16-17. *HR Gateway*
12. Meyer & Allen (1991). A three component conceptualization of organizational commitment. *Human Resource Management Review*, 1, 61-89.
13. Morrell, Finlay (2011), 90 Steps to Employee Engagement & Staff Motivation. 200 pages. "90stepengagement.com"
14. Organisational Effectiveness: Discovering How to Make it Happen. *Right Management*, July 2009.
15. Rucci, Quinn, Kim (1998). The employee-customer profit chain. *Harvard Business Review*, pp. 83-97.
16. Scarlett, Ken (2010) "Quality Employee Engagement Measurement" pp 108-122 as featured in "The New HR Analytics" by Dr. Jac Fitz-enz.
17. Schneider, Hangs, & Smith (2003). Which comes first: employee attitudes or organizational financial and market performance? *Journal of Applied Psychology*
18. Smith, Kendall, & Hulin (1969). The measurement of satisfaction in work and retirement: A strategy for the study of attitudes.
19. Treacy, Michael (2006). Double Digit Growth.

**APPENDIX****DEMOGRAPHIC DETAILS: (Personal Data)**

- Name:..... Address:..... E-Mail ID:.....
1. Age:  
A) 20-45 year      B) 46-50 year      C) 51-55 year      D) Above 56year
  2. Department:  
A) Training      B) Production      C) Maintenance      D) Store
  3. Marital Status:  
A) Single      B) Married
  4. Education Qualification:  
A) 10<sup>th</sup>      B) 10-12<sup>th</sup>      C) Graduate      D) Diploma      E) Post Graduate
  5. Your experience at this concern  
A) Below 25 years      B) 25-30 years      C) 30-35 years      D) More than 35 yea
  6. What is your Remuneration per month?  
A) Below Rs.100000      B) Rs100000-750000      C) Rs.750000-1500000      D) More than 1500000

**ORGANIZATIONAL DETAILS**

7. Do you have the opportunities to do the work best?  
A) Almost always      B) Mostly      C) Sometimes      D) Rarely      E) Not at all
8. What is your opinion about infrastructure to do your work?  
A) Highly satisfied      B) Satisfied      C) neither satisfied nor dissatisfied      D) Dissatisfied  
E) Highly Dissatisfied
9. What is your suggestion about the recognition given by the management?  
A) Highly satisfied      B) Satisfied      C) Neither satisfied nor dissatisfied      D) Dissatisfied      E) Highly Dissatisfied
10. Are you satisfied with the effort to you and your performance by the superior and the team members?  
A) Highly satisfied      B) Satisfied      C) Neither satisfied nor dissatisfied      D) Dissatisfied      E) Highly Dissatisfied
11. Are you agree with the supportiveness by HOD/superiors  
A) Highly agree      B) Agree      C) Neither agree nor disagree      D) Disagree      E) Highly Disagree
12. Whether your suggestion is considered during your job?  
A) Frequently      B) Rarely      C) occasionally

Any suggestions please specify .....

Thank you.

**RELIABLE AND DISPERSED DATA SECURITY MECHANISM FOR CLOUD ENVIRONMENT****C.PRIYANGA****STUDENT****DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING****SRINIVASAN ENGINEERING COLLEGE****PERAMBALUR****A.RAMACHANDRAN****ASST. PROFESSOR****DEPARTMENT OF INFORMATION TECHNOLOGY****SRINIVASAN ENGINEERING COLLEGE****PERAMBALUR****ABSTRACT**

Cloud computing has recently emerged as a promising hosting platform that performs an intelligent usage of a collection of services, applications, information and infrastructure comprised of pools of computer, network, information and storage resources. On the one hand, remote data storage are subject to not only Byzantine failures, but also External and Internal attacks, as along the time the adversary may modify or pollute the stored data. To overcome these issues we propose a novel approach called RDSM (Reliable and Dispersed Data Security Mechanism). The proposed design further supports secure and efficient dynamic operations on outsourced data, including block modification, deletion, and append. The batch auditing mechanism provides block level integrity checking in the cloud environment. Extensive security and performance analysis shows that the proposed scheme is highly efficient and resilient against Byzantine failure, malicious data modification attack, and even server colluding attacks.

**KEYWORDS**

cloud computing, storage security, ECC algorithm, byzantine faults.

**1.INTRODUCTION**

Cloud computing is an significant key idiom in rushing IT businesses. A feature of cloud computing is dispersed architecture based on variable nodes. Cloud computing lessens the total cost of a service by sharing all computational resources with other services. Platform-as-a-Service (PaaS) is the service model of cloud computing, and it offers a program executable environment for service providers. PaaS facilitates deployment of programs deprived of the cost and intricacy of buying and handling the fundamental hardware and software layers. However, some security risks have been tinted for cloud computing services. It is impossible for users to verify the honesty of all cloud computing environments, and the fear is that operations in cloud computing may be supported out without trusted environments. The dynamic and liquefied nature of the environments will make it difficult to maintain the consistency of security and ensure the ability to audit records. Thus, moving critical programs and delicate data to a public and shared cloud computing environment is a major concern for service providers. From the viewpoint of data security, which has always been a vital aspect of quality of service, Cloud Computing unavoidably poses new interesting security threats for number of reasons.

Firstly, outdated cryptographic primitives for the purpose of data security protection cannot be directly adopted due to the users' loss control of data under Cloud Computing. Therefore, confirmation of correct data storage in the cloud must be conducted without explicit knowledge of the whole data. Since various kinds of data for each user stored in the cloud and the demand of long term incessant pledge of their data safety, the problem of confirming accuracy of data storage in the cloud becomes even more challenging. Secondly, Cloud Computing is not just a third party data warehouse. Therefore, distributed protocols for storage correctness assurance will be of most importance in achieving a robust and secure cloud data storage system in the real world. However, such important area remains to be fully explored in the literature.

Recently, the significance of ensuring the remote data integrity has been highlighted by the many research works. These techniques, while can be useful to ensure the storage precision without having users owning data, cannot address all the security threats in cloud data storage, since they are all focusing on single server scenario and most of them do not consider dynamic data operations. As a complementary approach, researchers have also proposed distributed protocols for ensuring storage correct-ness across multiple servers or peers. Again, none of these distributed schemes is aware of dynamic data operations. As a result, their applicability in cloud data storage can be drastically limited. In this paper, we propose a reliable and efficient dispersed storage verification scheme with obvious dynamic data support to ensure the accuracy and accessibility of users' data in the cloud. We rely on erasure-correcting code in the file distribution preparation to provide redundancies and guarantee the data dependability against Byzantine servers, where a storage server may fail in arbitrary ways. This construction drastically reduces the communication and storage overhead as compared to the traditional replication-based file distribution techniques.

By utilizing the Elliptic Curve Cryptography (ECC) token with distributed verification of erasure-coded data, RDSM achieves the storage correctness insurance as well as data error localization. In order to strike a good balance between error resilience and data dynamics, we further explore the algebraic property of our token computation and erasure-coded data, and demonstrate how to efficiently support dynamic operation on data blocks, while maintaining the same level of storage correctness assurance. In order to save the time, computation resources, and even the related online burden of users, we also provide the extension of the proposed main scheme to support third-party auditing, where users can safely delegate the integrity checking tasks to third-party auditors (TPA) and be worry-free to use the cloud storage services. Our work is among the first few ones in this field to consider distributed data storage security in cloud computing.

**2. REVIEW OF LITERATURE**

Cloud storage enables users to remotely store their data and enjoy the on-demand high quality cloud applications without the burden of local hardware and software management. Though the benefits are clear, such a service is also relinquishing users' physical possession of their outsourced data, which inevitably poses new security risks toward the correctness of the data in cloud. In order to address this new problem and further achieve a secure and dependable cloud storage service, we propose in this paper a flexible distributed storage integrity auditing mechanism, utilizing the homomorphic token and distributed erasure-coded data. The design allows users to audit the cloud storage with very lightweight communication and computation cost. The auditing result not only ensures strong cloud storage correctness guarantee, but also simultaneously achieves fast data error localization, i.e., the identification of misbehaving server. Considering the cloud data are dynamic in nature, the proposed design further supports secure and efficient dynamic operations on outsourced data, including block modification, deletion, and append. Analysis shows the proposed scheme is highly efficient and resilient against Byzantine failure, malicious data modification attack, and even server colluding attacks.

In order to address the new problem in the third party auditing mechanism, user can able to audit the file one at a time. In the mechanism process time will be increased during the process. RSA algorithm was not suitable for small amount of file integrity process. The very first integrity tree was Merkle's hash tree

(Merkle 1989). Originally it was proposed for public key authentication. Blum et al.(1994)it was applied as an integrity tree for protecting memory content. The method was referred to as tree authentication.

- It is possible for CSP to discard rarely accessed data without being detected in a timely fashion.
- Its lacking of offering strong assurance of data integrity and availability may impede its wide adoption by both enterprise and individual cloud users.
- The verification of cloud storage correctness must be conducted without explicit knowledge of the whole data files.
- Disadvantage of Merkle trees is that data writes (or data changes) involved several sequential hashes which could not be parallelized for efficiency.
- They may be useful for QoS testing , but does not guarantee the data availability in case of server failures.

### 3.PROBLEM STATEMENT

Chapter 2 and the above sections in the current chapter have discussed some of the security auditing aspects of public clouds and the risks related to adoption of public cloud computing, as well as the public opinion stance towards adoption of public cloud computing. Two propositions have been formulated, regarding control over placement of the VM instance in batch auditing mechanism, with respect to the integrity guarantees of the cloud environment. That will help reduce the complexity of the addressed question and allow us to focus on the exact issue with a minimum number of complementary aspects.

#### 3.1 SYSTEM MODEL

**User:** an entity, who has data to be stored in the cloud and relies on the cloud for data storage and computation, can be either enterprise or individual customers.

**Cloud Server (CS):** an entity, which is managed by cloud service provider (CSP) to provide data storage service and has significant storage space and computation resources (we will not differentiate CS and CSP hereafter).

**Third-Party Auditor:** an optional TPA, who has expertise and capabilities that users may not have, is trusted to assess and expose risk of cloud storage services on behalf of the users upon request.

In cloud data storage, a user stores his data through a CSP into a set of cloud servers, which are running in a simultaneous, cooperated, and distributed manner. Data redundancy can be employed with a technique of erasure-correcting code to further tolerate faults or server crash as user's data grow in size and importance. Thereafter, for application purposes, the user interacts with the cloud servers via CSP to access or retrieve his data. In some cases, the user may need to perform block level operations on his data. The most general forms of these operations we are considering are block update, delete, insert, and append. Note that in this paper, we put more focus on the support of file oriented cloud applications other than non-file application data, such as social networking data. In other words, the cloud data we are considering is not expected to be rapidly changing in a relative short period.

#### 3.2 DESIGN GOALS

To guarantee the security and reliability for cloud data storage, we aim to design efficient mechanisms for dynamic data verification and operation and achieve the following goals:

**1.Storage correctness:** to ensure users that their data are indeed stored appropriately and kept intact all the time in the cloud.

**2.Fast localization of data error:** to effectively locate the malfunctioning server when data corruption has been detected.

**3.Dynamic data support:** to maintain the same level of storage correctness assurance even if users modify, delete, or append their data files in the cloud.

**4.Dependability:** to enhance data availability against Byzantine failures, malicious data modification and server colluding attacks, i.e., minimizing the effect brought by data errors or server failures.

**5.Lightweight:** to enable users to perform storage correctness checks with minimum overhead.

### 4. OBJECTIVE

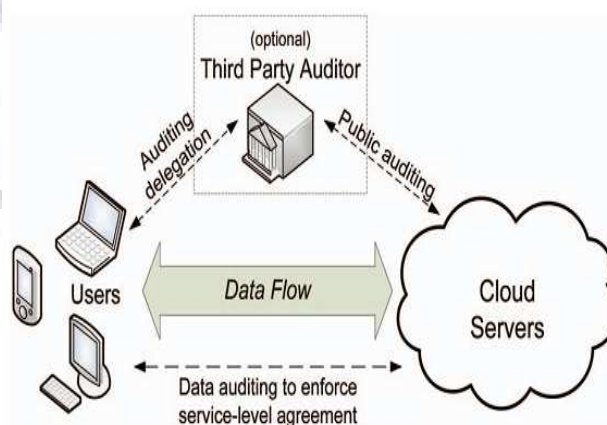
In the following chapters we examine a scalable solution for secure integrity checking done by elliptic curve cryptography algorithm in public clouds, to enable block level file integrity checking. The main objective of this paper should be able to check the integrity in cloud environment using batch auditing mechanism by the third party auditor.

### 5.ENSURING CLOUD DATA STORAGE

Since user requirements for cloud services are varied, service providers have to ensure that they can be flexible in their service delivery while keeping the users isolated from the underlying infrastructure. Recent advances in microprocessor technology and software have led to the increasing ability of commodity hardware to run applications within Virtual Machines (VMs) efficiently. VMs allow both the isolation of applications from the underlying hardware and other VMs, and the customization of the platform to suit the needs of the end-user. Providers can expose applications running within VMs, or provide access to VMs themselves as a service (e.g. Amazon Elastic Compute Cloud) thereby allowing consumers to install their own applications. While convenient, the use of VMs gives rise to further challenges such as the intelligent allocation of physical resources for managing competing resource demands of the users.

Cloud Computing is a large-scale distributed computing paradigm that is driven by economies of scale, in which a pool of abstracted, virtualized, dynamically-scalable, managed computing power, storage, platforms, and services are delivered on demand to external customers over the Internet. Cloud is the network which is constructed through cloud computing model, and cloud service is the service provided in cloud. Now, Cloud Computing has become the hottest technology in IT, and is also the research focus in academic.

FIGURE1: SYSTEM ARCHITECTURE



## 6. IMPLEMENTATION

### 6.1 FILE DISTRIBUTION PREPARATION

It is well known that erasure-correcting code may be used to tolerate multiple failures in distributed storage systems. In cloud data storage, we rely on this technique to disperse the data file  $F$  redundantly across a set of  $n = m + k$  distributed servers. By placing each of the  $m + k$  vectors on a different server, the original data file can carry on the failure of any  $k$  of the  $m + k$  servers without any data loss, with a space overhead of  $k/m$ . For support of proficient sequential I/O to the original file, our file layout is systematic, i.e., the unmodified  $m$  data file vectors together with  $k$  parity vectors is distributed across  $m + k$  different servers. Suppose the user wants to challenge the cloud servers  $t$  times to ensure the correctness of data storage. Specifically, to generate the  $i$ th token for server  $j$ , the user acts as follows:

1. Derive a random challenge value and a permutation key.
2. Compute the set of  $r$  randomly-chosen indices.
3. Calculate the token.

After token generation, the user has the choice of either keeping the pre-computed tokens locally or storing them in encrypted form on the cloud servers. In our case here, the user stores them locally to obviate the need for encryption and lower the bandwidth overhead during dynamic data operation which will be discussed shortly. 3.2 Dispute Token Precomputation In order to achieve assurance of data storage correctness and data error localization simultaneously, our scheme entirely relies on the precomputed verification tokens.

The main idea is as follows: before file distribution the user precomputes a certain number of short verification tokens on individual vector, each token covering a random subset of data blocks. Later, when the user wants to make sure the storage correctness for the data in the cloud, he challenges the cloud servers with a set of randomly generated block indices. Upon receiving challenge, each cloud server computes a short "signature" over the specified blocks and returns them to the user. The values of these signatures should match the corresponding tokens precomputed by the user. Meanwhile, as all servers operate over the same subset of the indices, the requested response values for integrity check must also be a valid codeword determined by the secret matrix  $P$ .

### 6.2 FILE SPLITTING PROCESS

It includes file splitting process, which means storing of data into multiple servers. We propose the system with the data stored in the cloud may not only accessed but also be frequently updated by the users. Extensive security and performance analysis shows the proposed schemes are provably secure and highly efficient. The paper proposes services for data security and access control when users outsource sensitive data for sharing on cloud servers. The paper addresses this challenging open issue by, on one hand, defining and enforcing access policies based on data attributes, and, on the other hand, allowing the data owner to assign most of the computation tasks involved in fine grained data access control to un-trusted cloud servers without disclosing the underlying data contents. In Order to address this new problem and further achieve a secure and dependable cloud storage service, we propose in this paper a flexible distributed storage integrity auditing mechanism, utilizing the homomorphic token and distributed coded data. The splitting process is used to transfer the data to destination by using block by block method; proposed scheme enables the data owner to delegate tasks of data file re-encryption and user secret key update to cloud servers without disclosing data contents or user access privilege information. We achieve this goal by exploiting and uniquely combining techniques and algorithms (*Elliptic curve cryptography (ECC)*), Correctness Verification and Error Localization, traditional replication-based file distribution, adding random perturbations. Considering the cloud data are dynamic in nature, the proposed design further supports secure and efficient dynamic operations on outsourced data, including block modification, deletion, and append. Our proposed scheme also has salient properties of user access privilege confidentiality and user secret key accountability and achieves fine - graininess, scalability and data confidentiality for data access control in cloud computing. Extensive analysis shows that our proposed scheme is highly efficient and provably secures under existing security models.

### 6.3 FILE ENCRYPTION PROCESS

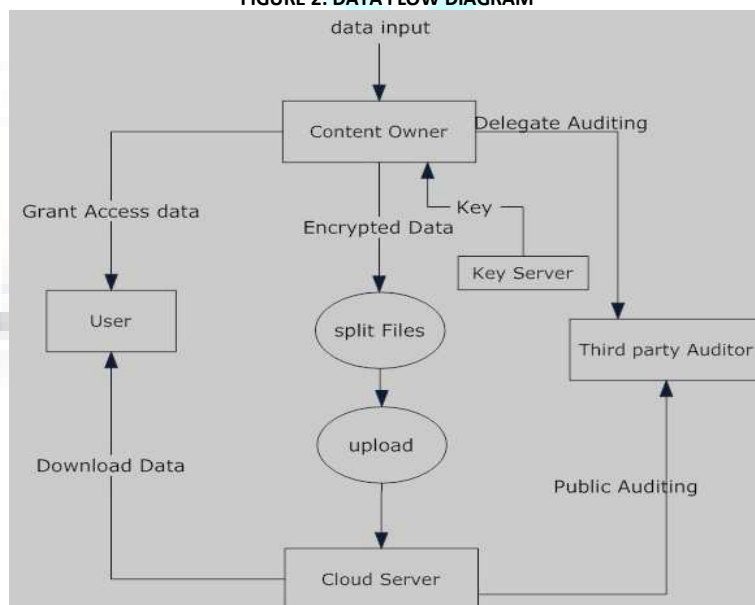
The user can reconstruct the original file by downloading the data vectors from the first  $m$  servers, assuming that they return the correct response values. Notice that our verification scheme is based on random spot-checking, so the storage correctness assurance is a probabilistic one. However, by choosing system parameters appropriately and conducting enough times of verification, we can guarantee the successful file retrieval with high probability. On the other hand, whenever the data corruption is detected, the comparison of pre-computed tokens and received response values can guarantee the identification of misbehaving server(s) (again with high probability), which will be discussed shortly.

Therefore, the user can always ask servers to send back blocks of the  $r$  rows specified in the challenge and regenerate the correct blocks by erasure correction, as long as the number of identified misbehaving servers is less than  $k$ . (otherwise, there is no way to recover the corrupted blocks due to lack of redundancy, even if we know the position of misbehaving servers.) The newly recovered blocks can then be redistributed to the misbehaving servers to maintain the correctness of storage.

### 6.4 FILE RECOVERY PROCESS

Most websites and server-based applications run on particular computers or servers. What differentiates the cloud from the way those are set up is that the cloud utilizes the resources from the computers as a *collective virtual computer*, where the applications can run independently from particular computer or server configurations. They are basically floating around in a "cloud of resources", making the hardware less important to how the applications work.

FIGURE 2: DATA FLOW DIAGRAM



With broadband internet, the need to have the software run on your computer or on a company's site is becoming less and less essential. A lot of the software that people use nowadays is completely web-based. The cloud takes advantage of that to bring it to the next level. To understand how does cloud computing work, imagine that the cloud consists of layers mostly the **back-end** layers and the **front-end** or user-end layers. The front-end layers are the ones you see and interact with. When you access your email on Gmail for example, you are using software running on the front-end of a cloud. The same is true when you access your Facebook account. The back-end consists of the hardware and the software architecture that fuels the interface you see on the front end.

Because the computers are set up to work together, the applications can take advantage of all that computing power as if they were running on one particular machine. Cloud computing also allows for a lot of flexibility. Depending on the demand, you can increase how much of the cloud resources you use without the need for assigning specific hardware for the job, or just reduce the amount of resources assigned to you when they are not necessary. The transition from being very 'personal hardware dependent' to a world where resources are shared among the masses is creeping up on us slowly and unobtrusively. Very many people have already transitioned to using a cloud environment for most of their time in front of the computer without even realizing it. Sure, most of us still use some version of Microsoft Office or Quickbooks that was installed on our computers, but even those kinds of software are now offering an online version that can be used instead.

The possibility of being able to access your data and software wherever you need it makes this transition very appealing to most people. Are there problems with this concept? Of course there are. If for some reason your internet goes down, your access to your data also disappears. There are security concerns with the data and the risk that companies will use proprietary formats for the files and that require that you pay for a certain service monthly or you may lose access to your own data permanently. So choose wisely when picking a service to use with your important data and make sure it can be downloaded if needed, but also enjoy the flexibility those services provide.

### 6.5 BATCH AUDITING

Data integrity is one of the most critical elements in any system. Data integrity is easily achieved in a standalone system with a single database. Data integrity in such a system is maintained via database constraints and transactions. Transactions should follow ACID (atomicity, consistency, isolation and durability) properties to ensure data integrity. Most databases support ACID transactions and can preserve data integrity.

Next in the complexity chain are distributed systems. In a distributed system, there are multiple databases and multiple applications. In order to maintain data integrity in a distributed system, transactions across multiple data sources need to be handled correctly in a failsafe manner. This can be done using a central global transaction manager. Each application in the distributed system should be able to participate in the global transaction via a resource manager.

## 7. CONCLUSION

In this paper, we examine the problem of user content security in cloud data storage, which is basically a dispersed storage system. To achieve the declarations of cloud data integrity and availability and enforce the quality of reliable cloud storage service for users, we propose an operative and elastic dispersed scheme with explicit dynamic data support, including block update, delete, and append. In this paper, we presented a possible solution for security issues in cloud computing environments. The batch auditing scheme provides block level security for user data and protects the whole data against malicious attacks. We quantitatively analyzed the security of our scheme. Our results show that our scheme achieves computational security against both internal and external attacks.

## 8. RELATED WORKS

In our vision, integrity of the cloud infrastructure is ensured through the use of Trusted Computing. In addition, we advocate the seamless extension of control from the enterprise into the cloud through the powerful combination of high-assurance remote server integrity, and cryptographic protocols supporting computation on cipher text. With our approach, content is protected in a manner consistent with policies, whether in the enterprise or the cloud. Yet, because the protection mechanisms support computation, it is possible for all cloud participants to mutually benefit from the cloud data *in a controlled manner*. Hence, there are business intelligence advantages derived from operating in the cloud that simply don't exist otherwise. We believe that the ability to get smarter through use of the cloud is the key differentiator that will sufficiently alleviate privacy fears to ensure widespread adoption.

Since user requirements for cloud services are varied, service providers have to ensure that they can be flexible in their service delivery while keeping the users isolated from the underlying infrastructure. Recent advances in microprocessor technology and software have led to the increasing ability of commodity hardware to run applications within *Virtual Machines* (VMs) efficiently.

VMs allow both the isolation of applications from the underlying hardware and other VMs, and the customization of the platform to suit the needs of the end-user. Providers can expose applications running within VMs, or provide access to VMs themselves as a service (e.g. Amazon Elastic Compute Cloud) thereby allowing consumers to install their own applications. While convenient, the use of VMs gives rise to further challenges such as the intelligent allocation of physical resources for managing competing resource demands of the users.

## 9. REFERENCES

3. A. Juels and B.S. Kaliski Jr., "PORs: Proofs of Retrievability for Large Files," Oct. 2007.
4. C. Wang, Qian Wang, Kui Ren, Ning Cao, and Wenjing Lou, "Toward Secure and Dependable Storage Services in Cloud Computing" June 2012.
5. C. Wang, S.S.M. Chow, Q. Wang, K. Ren, and W. Lou, "Privacy- Preserving Public Auditing for Secure Cloud Storage," 2012,
6. C.Wang, K. Ren, W. Lou, and J. Li, "Towards Publicly Auditable Secure Cloud Data Storage Services," July/Aug. 2010.
7. C.Wang, Q. Wang, K. Ren, and W. Lou, "Ensuring data storage security in cloud computing," July 2009,
8. G.Ateniese, R. Burns, R. Curtmola, J. Herring, L. Kissner, Z.Peterson, and D. Song, "Provable Data Possession at Untrusted Stores," 2007
9. H. Shacham and B. Waters, "Compact Proofs of Retrievability," 2008.
10. J. Hendricks, G. Ganger, and M. Reiter, "Verifying Distributed Erasure-Coded Data," 2007.
11. K.D. Bowers, A. Juels, and A. Oprea, "HAIL: A High-Availability and Integrity Layer for Cloud Storage," , 2009
12. M.A. Shah, R. Swaminathan, and M. Baker, "Privacy-Preserving Audit and Extraction of Digital Contents," 2008.
13. Q. Wang, C. Wang, J. Li, K. Ren, and W. Lou, "Enabling Public Verifiability and Data Dynamics for Storage Security in Cloud Computing," 2009.
14. Q. Wang, C. Wang, K. Ren, W. Lou, and J. Li, "Enabling Public Auditability and Data Dynamics for Storage Security in Cloud Computing," 2011.

**CONSTRUCTION OF OPTIMUM PORTFOLIO WITH SPECIAL REFERENCE TO BSE 30 COMPANIES IN INDIA**

**DR. KUSHALAPPA. S**  
**ASST. PROFESSOR**  
**DEPARTMENT OF MBA**  
**ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**MIJAR**

**AKHILA**  
**STUDENT**  
**ALVA'S COLLEGE**  
**MOODBIDRI**

**ABSTRACT**

Modern portfolio theory has one central theme: "In constructing their portfolios investors need to look at the expected return of each investment in relation to the impact that it has on the risk of the overall portfolio". Portfolio management concerns the constructions and maintenance of a collection of investment. It is investment of funds in different securities in which the total risk of the portfolio is minimized, while expecting maximum return from it. It primarily involves reducing risk rather than increasing return. Return is obviously important though, and the ultimate objective of portfolio manager is to achieve a chosen level of return by incurring the least possible risk. The paper aims at constructing an optimal portfolio by applying Sharpe's single Index model of capital asset pricing in different scenarios, this model helps an investor to select the best securities to be included in an optimal portfolio and the weights of investment in each security. The present study deals with construction of an optimal portfolio with stocks of BSE 30 Index stocks and for this purpose Sharpe's Single Index Model has been used. The main objective of the study is to construct an optimal portfolio of 30 Index Stocks of Bombay Stock Exchange. The entire study is based on secondary data extracted from websites like Bombay Stock Exchange (BSE), Reserve Bank of India (RBI), books and journals. The sample size 30 companies listed on BSE. The analysis is based on stock returns of 30 companies for five years from 31<sup>st</sup> March 2008 to 31<sup>st</sup> March 2012.

**KEYWORDS**

Sharpe's single index model, Sharpe ratio, optimal portfolio, cut-off rate Portfolio, optimal portfolio, market risk, unsystematic risk, variance.

**INTRODUCTION**

Portfolio is the collection of financial or real assets such as equity shares, debentures, bonds, treasury bills and property etc. portfolio is a combination of assets or it consists of collection of securities. These holdings are the result of individual preferences, decisions of the holders regarding risk, return and a host of other considerations. Portfolio management concerns the construction & maintenance of a collection of investment. It is investment of funds in different securities in which the total risk of the Portfolio is minimized while expecting maximum return from it. It primarily involves reducing risk rather than increasing return. Return is obviously important though, and the ultimate objective of portfolio manager is to achieve a chosen level of return by incurring the least possible risk. Appropriate selection of securities can assure good returns to investors and can also help to reduce the losses. This article attempts to construct an optimal portfolio by applying Sharpe's single index model of capital asset pricing. To illustrate the model, a real portfolio selection problem is presented. The study is carried out to fulfil the objectives like (i) to construct an optimal portfolio by implementing Sharpe's single index model. (ii) To know the proportion of each security in the optimal portfolio. This paper aims at developing an optimal portfolio with stocks of BSE 30 companies, through Sharpe's Single Index Model. For the study, stocks of BSE 30 companies were taken and the optimal portfolio was constructed with 4 companies.

**OBJECTIVE OF THE STUDY**

The main objective of the study is to construct an optimal portfolio of manufacturing companies listed on Bombay Stock Exchange. In order to achieve the main objective, the following subsidiary objectives have been drawn:

- To analyze the performance of sample manufacturing companies based on their return, systematic risk, unsystematic risk and total risk.
- To find out the excess return to beta ratio.
- To construct an optimal portfolio in different market scenarios.
- To test and analyse single index model by Sharpe – an intelligent tool to select profitable stock in different market scenario for investors.

**METHODOLOGY**

The entire study is based on secondary data extracted from websites like Bombay Stock Exchange (BSE), Reserve Bank of India (RBI), books and journals. The sample size is 30 companies listed on BSE SENSEX. The analysis is based on stock returns of 30 companies for five years from 31<sup>st</sup> March 2008 to 31<sup>st</sup> March 2012.

**SCOPE OF THE STUDY**

The study is all about construction of an optimal portfolio with stocks of BSE 30 companies. Thirty companies have been selected for the purpose construction of an optimal portfolio. The study covers a period of five years from March 31<sup>st</sup> 2008 to March 2012.

**LIMITATIONS**

Since the optimal portfolio constructed in this study is based on Sharpe's Single Index Model, it is not free from market risk. The study is limited to closing prices of the stocks for five years.

**TOOLS USED FOR ANALYSIS**

**Return of the stock** is being calculated by using the following formula.

$$\text{Return} = \frac{\text{Closing Price} - \text{Opening Price}}{\text{Opening Price}} * 100$$

**Beta Coefficient** is given by;

$$\beta = \text{Correlation Coefficient} * \frac{\sigma(Y)}{\sigma(X)}$$

Where,  $\sigma(Y)$  = Standard deviation of individual stock

$\sigma(X)$  = Standard deviation of market

**Risk free return** is the average risk free return of five years from March 2008 – March 2012.

**Excess Return-beta ratio** is given by  $\frac{R_i - R_f}{\beta_i}$

Where,  $R_i$  = Expected return on stock

$R_f$  = Expected return on riskless asset

$\beta_i$  = Beta coefficient of the security

**Systematic Risk:**  $\sigma_m^2 * \beta_i^2$

Where,  $\sigma_m^2$  = Variance of the market return

**Unsystematic Risk:**  $\sigma_i^2 - \sigma_m^2 * \beta_i^2$

Where,  $\sigma_i^2$  = Variance of the stock return

**Cut-off point  $C^*$ :**  $C_i = \frac{\sigma_m^2 \sum_{i=1}^N \frac{(R_i - R_f) \beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^N \frac{\beta_i^2}{\sigma_{ei}^2}}$

Where,  $\sigma_m^2$  = Variance of the market return

$\sigma_{ei}^2$  = Unsystematic risk of the stock

**Weights of investment in each security:**  $W_i = \frac{Z_i}{\sum_{i=1}^N Z_i}$

Where,  $W_i$  = Proportion of investment in each security

$Z_i = \frac{\beta_i}{\sigma_{ei}^2} (R_i - R_f - C^*)$

Where,  $C^*$  = The cut – off point

## DATA ANALYSIS AND INTERPRETATION

It is clear from Table 1 that among the stocks under study, Jindal Steel & Power ranked first in terms of annual returns with 36.6638067% return and Reliance Communications obtained the least rank, i.e., 30<sup>th</sup> rank, with -7.762140811% return. In terms of systematic risk, HUL has the lowest risk and Tata Motors has the highest risk compared to other stocks under study. HDFC Bank has the lowest unsystematic risk and Jindal Steel & Power has the highest unsystematic risk compared to other stocks under study. HUL has the lowest total risk and Tata Motors has the highest total risk compared to other stocks under study.

As per Table 2 it is crystal clear that Hero Motor Corp stock has the highest (21.52597) excess return-beta ratio and Cipla has the lowest (-19.1308) excess return-beta ratio. The excess return to beta ratio was calculated using 6.48% as risk free rate of return which is the average of all risk free rates from March, 2008 – March, 2012. It is also shown in the table that the cut-off point is 12.56409606 and it is obtained for the fourth stock, which is ranked in terms of excess return to beta ratio. As per the rule, the stocks above  $C^*$  can be included in the portfolio.

Table 4 shows the proportion of investment to be made in each stock. It is clear from the table that highest proportion of investment is to be made (i.e., 61.5282%) in ITC stock and lowest investment is to be made (i.e., 5.642103%) in HUL stock.

Table 5 shows the fact that annual returns of the stocks is highly correlated with systematic risk, unsystematic risk and total risk and it is highest (0.71) with unsystematic risk. Systematic risk is highly correlated with total risk and unsystematic risk and it is highest (0.99) with total risk. Unsystematic risk is highly correlated with total risk (0.72).

## FINDINGS OF THE STUDY

- It is found in the study that among the stocks under study, Jindal Steel & Power has highest annual return and Reliance communications has the lowest annual return. Therefore the comparatively the most profitable stock is Jindal Steel and power.
- It is clear from the study that HUL stock has the lowest systematic risk and Tata Motors stock has the highest systematic risk compared to other stocks under study.
- It is revealed in the study that HDFC Bank has the lowest unsystematic risk and Jindal Steel and Power has the highest unsystematic risk compared to other stocks under study.
- In terms of total risk, it is found in the study that HUL has the lowest total risk and Tata Motors has the highest total risk compared to other stocks under study.
- As per study it is crystal clear that Hero Motor Corp stock has the highest (21.526) excess return-beta ratio and Cipla has the lowest (-19.1308) excess return-beta ratio.
- It is found in the study that the cut-off point is 12.56409606 and it is obtained for the sixth ranked stock
- The study shows the fact that highest proportion of investment is to be made (i.e. 61.5282%) in ITC stock and lowest investment is to be made (i.e., 5.6421%) in HUL stock to construct the optimal portfolio.
- It is evident from the study that annual returns of the stocks is highly correlated with systematic risk, unsystematic risk and total risk, Systematic risk is highly correlated with total risk and unsystematic risk and it is equal in both the cases, Unsystematic risk is perfectly correlated with total risk.

## CONCLUSION

Sharpe's model is a scientific technique which can be used to construct the optimal portfolio. In this study out of thirty stocks selected for the study, only four stocks are suitable to construct the optimal portfolio. The stocks supposed to be included for the construction of optimal portfolio are; Hero Motor Corp, ITC, HUL, Jindal Steel and power. The investor has to decide about the proportion of investment in each security as found in the study so as to make the investment more scientific. Finally, it can be concluded that present study will help the investors to create optimal portfolio and also help the investors as a guiding record in future.

## TABLES

TABLE 1: RANKING OF THE STOCKS OF SAMPLE MANUFACTURING COMPANIES BASED ON RETURNS, SYSTEMATIC RISK, UNSYSTEMATIC RISK AND TOTAL RISK

Sl. No.	Stocks	Annual Return (%)	Rank	Systematic Risk	Rank	Unsystematic risk	Rank	Total risk	Rank
1	Hero Motor Corp	13.20113601	10	86.82687906	3	331.118608	17	417.9454866	6
2	ITC	12.42027323	12	96.15493166	4	90.3015848	2	186.4565164	2
3	HUL	7.843597869	20	6.531898729	1	156.980349	7	163.5122475	1
4	Jindal Steel & Power	36.6638067	1	3890.24054	28	1736.69908	30	5626.939622	29
5	HDFC Bank	13.63432273	9	763.4090953	12	69.9075176	1	833.3166129	10
6	Tata Motors	25.2338084	2	5484.338371	30	1212.21451	28	6696.552879	30
7	SBI	16.81233617	4	2162.573845	21	397.311631	20	2559.885475	20
8	HDFC FIN	13.78300078	8	1505.319745	18	101.372088	4	1606.691833	14
9	Reliance Infrastructure	17.72614775	3	3866.584978	27	1223.46557	29	5090.050546	27
10	Tata Power Company	11.60985076	14	851.3005716	13	401.771303	21	1253.071875	12
11	Tata Consultancy Services	12.78651544	11	1428.237179	16	642.503091	24	2070.740269	18
12	Larsen & Tourbo Ltd	14.88895036	6	3120.897509	23	168.448061	8	3289.34557	23
13	ACC	9.66003371	19	453.7136841	8	360.274193	19	813.9878775	9
14	Mahindra & mahindra	12.0691338	13	1492.183837	17	566.576946	23	2058.760783	17
15	Jaiprakash Associates	15.57482362	5	4442.12492	29	659.518377	26	5101.643296	28
16	Tata Steel	14.13003289	7	3563.595683	25	199.234372	9	3762.830055	25
17	Maruti Suzuki India	10.28872282	16	1313.207364	14	423.214989	22	1736.422353	16
18	Hindlco Industries Ltd	11.13608867	15	2815.616322	22	334.272728	18	3149.88905	22
19	Wipro	10.2113685	18	1906.893014	19	718.579052	27	2625.472067	21
20	ICICI Bank	10.28165836	17	3389.677969	24	280.117732	14	3669.795701	24
21	SterlightInd Ltd	7.149708581	21	1964.111258	20	329.971608	16	2294.082866	19
22	Infosys	6.380697008	22	527.2259629	9	241.182682	11	768.4086448	8
23	Bharat Electricals	6.10333091	23	627.5350132	11	644.234441	25	1271.769454	13
24	DLF	1.99663977	27	3624.316141	26	264.95315	12	3889.269291	26
25	Reliance Industries	4.051663541	24	551.0021762	10	313.038423	15	864.0405988	11
26	ONGC	3.892597269	25	339.6792661	7	134.430285	5	474.1095511	7
27	Reliance Communications	-7.762140811	30	1411.687346	15	267.285863	13	1678.973209	15
28	BharatiAirtel	0.396697692	29	228.2959367	6	146.737921	6	375.033858	5
29	NTPC	1.627622983	28	96.57847146	5	92.5420588	3	189.1205303	3
30	Cipla	3.683598632	26	18.99900802	2	227.120826	10	246.1198338	4

TABLE 2: EXCESS RETURN TO BETA RATIO AND CUT-OFF POINT CALCULATIONS FOR MANUFACTURING COMPANIES UNDER STUDY

Sl. No.	Stocks	$(R_i - R_f)/B_i$	Rank
1	Hero Motor Corp	21.52597141	1
2	ITC	18.07928438	2
3	HUL	15.93730416	3
4	Jindal Steel & Power	14.43954654	4
5	HDFC Bank	7.72735472	5
6	Tata Motors	7.556296465	6
7	SBI	6.630167918	7
8	HDFC FIN	5.617279078	8
9	Reliance Infrastructure	5.396921226	9
10	Tata Power Company	5.24737522	10
11	Tata Consultancy Services	4.980158694	11
12	Larsen & Tourbo Ltd	4.491885792	12
13	ACC	4.456579637	13
14	Mahindra & Mahindra	4.318184526	14
15	Jaiprakash Associates	4.072109154	15
16	Tata Steel	3.82431678	16
17	Maruti Suzuki India	3.137169438	17
18	Hindlco Industries Ltd	2.618948583	18
19	Wipro	2.550550786	19
20	ICICI Bank	1.949034216	20
21	SterlightInd Ltd	0.451930748	21
22	Infosys	-0.126981054	22
23	Bharat Electricals	-0.446744602	23
24	DLF	-2.221173314	24
25	Reliance Industries	-3.084568235	25
26	ONGC	-4.186095051	26
27	Reliance Communications	-11.30844332	27
28	BharatiAirtel	-12.00943146	28
29	NTPC	-14.72712159	29
30	Cipla	-19.13081449	30

TABLE 3:  $C_i$  CALCULATIONS FOR SAMPLE STOCKS

Sl. No.	Stocks	$\frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}$	$\sigma_m^2 \sum_{i=1}^N \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}$	$\frac{\beta_i^2}{\sigma_{ei}^2}$	$1 + \sigma_m^2 \sum_{i=1}^N \frac{\beta_i^2}{\sigma_{ei}^2}$	$C_i$
1	Hero Motor Corp	0.006340789	0.006340789	0.000294565	0.000295	4.471953822
2	ITC	0.021625561	0.02796635	0.001196151	0.001491	10.69846457
3	HUL	0.000744936	0.028711286	4.67417E-05	0.001537	10.79049424
4	Jindal Steel & Power	0.036334182	0.065045468	0.002516297	0.004054	12.56409606c*
5	HDFC Bank	0.094792559	0.159838027	0.012267142	0.016321	9.162800438
6	Tata Motors	0.038402872	0.198240899	0.005082235	0.021403	8.800354347
7	SBI	0.040539104	0.238780004	0.00611434	0.027517	8.337055317
8	HDFC FIN	0.093701452	0.332481455	0.016680932	0.044198	7.336025732
9	Reliance Infrastructure	0.019159838	0.351641294	0.003550142	0.047749	7.195165661
10	Tata Power Company	0.012489817	0.364131111	0.002380203	0.050129	7.104708146
11	Tata Consultancy Services	0.012435929	0.37656704	0.002497095	0.052626	7.006005213
12	Larsen & Turbo Ltd	0.093487199	0.470054239	0.020812461	0.073438	6.304236694
13	ACC	0.006304641	0.47635888	0.001414682	0.074853	6.269833262
14	Mahindra & mahindra	0.012775402	0.489134282	0.002958512	0.077811	6.19668461
15	Jaiprakash Associates	0.030810109	0.519944391	0.00756613	0.085378	6.010850676
16	Tata Steel	0.076840108	0.596784499	0.020092506	0.10547	5.59869649
17	Maruti Suzuki India	0.010935035	0.607719535	0.003485638	0.108956	5.520752628
18	Hindlco Industries Ltd	0.024780465	0.6325	0.00946199	0.118418	5.291067267
19	Wipro	0.007603188	0.640103187	0.002980998	0.121399	5.224389704
20	ICICI Bank	0.026493983	0.66659717	0.01359339	0.134992	4.897291102
21	SterlightInd Ltd	0.003021839	0.669619009	0.006686509	0.141679	4.689143146
22	Infosys	-0.000311817	0.669307193	0.002455617	0.144134	4.607725341
23	Bharat Electricals	-0.000488836	0.668818356	0.001094218	0.145228	4.569934946
24	DLF	-0.034131029	0.634687327	0.015366216	0.160595	3.924653619
25	Reliance Industries	-0.006099019	0.628588308	0.001977268	0.162572	3.839989544
26	ONGC	-0.011882039	0.616706269	0.002838454	0.16541	3.70319043
27	Reliance Communications	-0.067092706	0.549613563	0.005932975	0.171343	3.186779918
28	BharatiAirtel	-0.020988829	0.528624734	0.001747696	0.173091	3.034333599
29	NTPC	-0.017265096	0.511359638	0.001172333	0.174263	2.915611156
30	Cipla	-0.001797701	0.509561937	9.39689E-05	0.174357	2.903805432

TABLE 4: PROPORTION OF INVESTMENT IN EACH STOCK

Sl. No.	Stocks	Proportion of Investment
1	Hero Motor Corp	25.90991
2	ITC	61.5282
3	HUL	5.642103
4	Jindal Steel & Power	6.919787

TABLE 5: CORRELATIONS BETWEEN ANNUAL RETURN, SYSTEMATIC RISK, UNSYSTEMATIC RISK AND TOTAL RISK

Variable	Annual Return	Systematic Risk	Unsystematic risk	Total Risk
Annual Return	1			
Systematic Risk	0.570896	1		
Unsystematic Risk	0.710898	0.593110953	1	
Total Risk	0.641343	0.985373645	0.721635	1

## REFERENCES

1. Balla V. K. (2002), Portfolio Analysis and Management, Sulthan Chand and Co. Ltd., New Delhi.
2. BhatSudhindra (2008), Security Analysis and Portfolio Management, Excel Books, New Delhi.
3. Booie.Zvi, Kane Alex and et.al.(2006), Investments, 6<sup>th</sup> edition, Tata McGraw Hill, New Delhi.
4. Chandra Prasanna (2008), Investment Analysis and Portfolio Management, 3<sup>rd</sup> edition, Tata McGraw Hill, New Dehi.
5. Fisher. E. Donald and Jordan. J. Ronald (2006), Security Analysis and Portfolio Management, Pearson Prentice Hall.
6. Kevin. S (2008), Portfolio Management, 2<sup>nd</sup> edition, PHI Learning Pvt. Ltd, New Delhi.
7. PandianPunithavathy (2004), Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd, New Delhi.
8. Reilly. K. Frank and Brown. C. Keith (2006), Investment Analysis and Portfolio Management, 8<sup>th</sup> edition, Cengage Learning India Pvt. Ltd, New Delhi.

## WEBSITES

9. www.bsi.com
10. www.rbibulletin.com

## INVESTIGATING QUALITY OF EDUCATION IN BUSINESS AND ECONOMICS PROGRAMS OF ADDIS ABABA UNIVERSITY (AAU) AND BAHIRDAR UNIVERSITY (BDU)

**BIRUK SOLOMON HAILE**  
**BUSINESS AND ECONOMICS COLLEGE**  
**BAHIRDAR UNIVERSITY**  
**BAHIRDAR**

### ABSTRACT

*The aim of this study is examining quality of education in business and economics programs of Addis Ababa and Bahir Dar Universities. I collected both quantitative and qualitative data by means of questionnaires, interviews and documents. The respondents were students and instructors of both universities. The study followed the embedded sequential design of mixed research approach. The collected quantitative data were analyzed using percentage distributions. While the qualitative data were analyzed using common themes of the issues raised. The result reveals that most instructors in both universities have lack of teaching skills, don't give answers for examination questions on time, repeat previous years' examination questions and don't implement continuous assessment techniques. In addition to this, there is shortage of important educational facilities. Most students attend classes if attendance is taken during the course offering. Students have no motivation to participate in class discussions. Moreover, they lack practical exercises of activities in organizations. Even if students perform less than 50% of the examination results correctly there is chance to get a pass letter grade which is contrary to the education and training policy of the country. To improve the situation: the universities should provide teaching skill development training for its instructors. The instructors should give immediate feedback for their students' performances. Instructors should have test specifications that may help them to avoid repeating previous years' examination questions. Instructors should engage in continuous assessment technique. Instructors should take attendances at the end of every session.*

### KEYWORDS

business & economics, business education, higher education, investigating quality, quality education.

### INTRODUCTION

Provision of quality education is an essential means to achieve optimal development. The Ethiopian education and training policy and consecutive education sector development programs have made significant efforts to create access for many children of school age (MOE, 1994). Consequently, this has also increased enrolment rates at all education levels. However, quality of education has been challenged in terms of student-teacher ratio, student text book ratio, students-classroom ratio and provision of qualified teachers (MOE, 2005). The achievement of educational objectives primarily depends on provision of quality education that could be related to input factors like teachers' effectiveness and institutional facilities. Quality of education depends to a large extent on quality of teachers (Tekeste, 1990).

Other than teachers' effectiveness, institutional facilities also have impact on quality of education. Students cannot work effectively in classrooms if institutional facilities are available in very limited quantity (Mulu Nega, 2012). That is why education and training policy of Ethiopia gives more emphasis to the supply and utilization of educational facilities to promote quality education (MOE, 1994). Additionally, inadequate facilities, insufficient training of teachers, overcrowded classrooms, shortage of books and other teaching materials are signs of low quality education (Berhanu, 2009).

Since, provision of quality education is vital condition to produce the intended skilled human power; it is very crucial to investigate quality of education. That is why I motivated to do this research.

### LITERATURE REVIEW

#### QUALITY IN EDUCATION

Education like a living organism has growing quality and hence it is sensitive to time and space. Since provision of quality education prepare students to meet objective demands of nations and ideological need of society, it is mainly considered as civil right (Robert & Gobb, 2001).

Quality of education may be one of the most widely used trend phrase in education reform across the world. But definition of quality education has diverse conception. It is highly sensitive to ideological and political orientations, complex elusive and more subjective (Ahistrom and Kallos, 1995; Ball, 1995; Drill, 1995). Because of these reasons, quality has no a universal definition. Irrespective of this notion, attempts are made to define quality in education as follows:

"Quality in education is an evaluation of process of educating which enhances the need to achieve and develop talents of customers of the process and at the same time meets accountability standards set by the client who pay for the process or outputs from the process of educating" (Hay, Bayene-Jardine and Wood, 2000, p.10).

"Quality as the totality of features and characteristics of a product or a service that bears on its ability to satisfy given needs" (Green, 1994, p. 17)

"Quality is fitness for a purpose" (Goodlad, 1995, p. 27)

This shows that quality in education has no a common definition.

#### INDICATORS OF QUALITY EDUCATION

Quality assessment is not simple to be reduced to numerical representation. Number of factors that can affect educational outcomes is so vast that straight forward relationship between circumstance of education and its products are not easy to determine. Nevertheless, it is helpful to think about the main elements of education system and how they interacts (Chalmers, D. 2008). That is why different conceptions of indicating quality education are forwarded by different stakeholders. Quality of teachers' performances, teacher-student ratio and availability of teaching-learning materials are equally important indicators of quality education (Coombe, 1991). Scholars agree that teachers thought, judgments and actions in classrooms comprise strong influence on whether or not students are provided with quality education (Shetman & Goodfried, 1993).

Alternatively, UNESCO suggested that enabling input dimensions, style of teaching-learning, assessment methods and language of instruction are core dimensions to evaluate quality education (UNESCO, 2006). Quality education is strongly determined by teachers' subject knowledge and teaching skills and availability of textbooks/learning materials. Teachers and educational institutions have major impact on quality education. This indicates that, to maintain quality education, teachers should be effective and institutions should have necessary facilities (Winch, 1996).

#### ACTIVE LEARNING AND QUALITY

The issue of active learning and quality is especially pertinent in countries that have adopted constructivist-based reforms in education. They are also undergoing rapid expansion to meet the 2015 goals of Education for All. When quantity of education is expanding, quality of education is declining, which is the situation many countries face (Alexander, 2000). With expansion and reform taking place at the same time, a severe burden falls on teachers to be flexible and reject traditional models and to internalize and practice new approaches - often within the context of conceptual confusion about reforms and minimal understanding of them (UNESCO, 2004).

Teachers are often the focus of criticism for problems that emerge with active learning, but more frequently problems may lie within areas other than this. Teachers are struggling to implement elements of a new paradigm that may be contradictory and are attempting to do so in classes that are over-crowded and under-resourced, classes in which quality would probably drop no matter what paradigm of teaching-learning in use (Alexander, 2000).

## IMPORTANCE OF THE STUDY

This study enables to identify major problems affecting quality of education in AAU and BDU. It enhances awareness of educational managers and other concerned bodies whether the institutions have necessary facilities or not to provide quality education. This study is a source of information to take remedial measures. It is also important for policy makers, program designers and program implementers for a number of reasons.

## STATEMENT OF THE PROBLEM

Provision of quality higher education is the base for nation's development. But in our country this seems challenging. There is no research undertaken on status of quality of Ethiopian business and economics programs. Problems related to offering quality education, impacts of shortages of institutional facilities, practices of students and instructors that hinder to offer quality education were not studied. Therefore, university members should examine quality of education offered in their institutions and take remedial actions accordingly. That is why I initiated to investigate quality of higher education in Ethiopia. Hence, this study aimed at addressing the following basic questions.

1. What are the problems related to offering quality education in business and economics programs of AAU and BDU?
2. What are impacts of instructional facilities to provide quality education in business and economics programs of AAU and BDU?
3. What are factors that hinder offering quality education on the side of students in business and economics programs of AAU and BDU?
4. What is the relationship between teachers' views of quality education and their practices in business and economics programs of AAU and BDU?

## OBJECTIVES OF THE STUDY

Objectives of this study are to examine major problems related to offering quality education, to investigate impacts of instructional facilities in providing quality education, to explore factors hindering to offer quality education from students' side and to investigate relationships between teachers' views of quality education and their practices in AAU and BDU.

## RESEARCH METHODOLOGY

### RESEARCH APPROACH

Mixed research approach is employed in conducting this research. Questionnaires, interviews and documents are used to collect primary data. Because of their easy access I purposely take business and economics programs of AAU and BDU. Three departments in business and economics faculties are included. Regular classes from second year and third year in respective departments are randomly taken.

### PARTICIPANTS

Questionnaire is distributed for 200 students and 100 instructors randomly selected from both universities. In addition, one senior class student from each department of a particular university was interviewed. Moreover, a vice dean and two senior instructors from AAU and a program manager and two senior instructors from BDU were interviewed to obtain detailed information on quality of education offered in their faculties. Interview responses were tape recorded in order not to lose data.

### ANALYSIS

Percentage distributions were used to analyze data obtained from questionnaire. Data obtained from interviews and documents were analyzed qualitatively.

## RESULTS AND DISCUSSION

### RESPONDENTS BACKGROUND

The respondents for this study were students and instructors of business and economics faculties of AAU and BDU in Ethiopia. Data were collected in October 2012. The following are general background information about respondents.

**TABLE 1: SEX OF RESPONDENTS AND THEIR UNIVERSITY**

No .1	University	AAU		Total		BDU		Total	
		M	F	N	%	M	F	N	%
2	Sex of respondents	66	26	92	48.94	72	24	96	51.06

Source: Survey questionnaire

Only 72 questionnaires from students and 20 questionnaires from AAU instructors were properly filled and used for analysis. Moreover, only 61 questionnaires from students and 35 questionnaires from BDU instructors were properly filled and used for analysis. The responses obtained from both students and instructors of both universities are combined and analysed together. Table 1 show that majority of the respondents are male.

**TABLE 2: FIELDS OF STUDY AND EDUCATIONAL LEVEL OF RESPONDENTS**

Item No. 3 and 4	AAU		BDU	
	Year	Number	Number	
Accounting and Finance	II	11	4	
	III	11	8	
	Instructors**	7	6	
	Total	29	18	
Management	II	9	10	
	III	21	21	
	Instructors**	6	9	
	Total	36	40	
Economics	II	7	6	
	III	13	12	
	Instructors**	7	20	
	Total	27	38	
	Grand Total	92	96	

Source: Survey questionnaire \*\*All respondent instructors are second degree (MA/MSc) holders

Table 2 shows that majority of the respondents are from management stream and majority of the respondents are from third year students. This implies that respondents have good understanding of the issues raised as they relatively have longer experiences.

### MAJOR PROBLEMS RELATED TO OFFERING QUALITY EDUCATION

There are various problems that affect offering quality education in education system. The following are some of them:

**TABLE 3: PROBLEMS RELATED TO INSTRUCTORS QUALITY**

No	Item	AAU	BDU
5	There is shortage of qualified Instructors by level of education	Percent	Percent
	- Strongly agree	3.26	10.42
	- Agree	5.43	25
	- Undecided	2.17	7.29
	- Disagree	67.39	47.91
	- Strongly disagree	21.74	9.38
6	Instructors lack teaching skill		
	- Strongly agree	28.26	25
	- Agree	32.61	28.13
	- Undecided	5.43	8.33
	- Disagree	13.04	19.79
	- Strongly disagree	20.65	18.75

Source: Survey questionnaire

Table 3 shows that majority of respondents agreed that there is no shortage of qualified instructors by level of education in their faculty. But there is variation of responses among the two universities. There is relatively no shortage of qualified instructors in AAU as compared to BDU. But majority of respondents agreed that instructors lack teaching skill in both universities.

**TABLE 4: PROBLEMS RELATED TO PERFORMANCE OF INSTRUCTORS**

No	Item	AAU	BDU
7	Instructors don't give timely academic consultation for students	Percent	Percent
	- Strongly agree	48.91	40.63
	- Agree	33.70	29.17
	- Undecided	0.00	3.13
	- Disagree	10.87	15.63
	- Strongly disagree	6.52	11.45

Source: Survey questionnaire

Table 4 indicates that majority of respondents strongly agree that instructors teaching in their faculty do not give timely consultation for their students on academic matters. Interview responses show that even if some instructors are posting consultation hours on their offices, they do not available during scheduled hours. Some respondents commented that some instructors do not treat students' problems politely or with respect. They reported that instructors are performing carelessly; indicators for their careless performances are that they absent from classes without informing students, repeat previous years' exam questions and do not give timely consultation for students.

**TABLE 5: PROBLEMS RELATED TO STUDENT POPULATION**

No	Item	AAU	BDU
8	There is shortage of library spaces	Percent	Percent
	- Strongly agree	46.74	47.92
	- Agree	27.17	31.25
	- Undecided	0.00	2.08
	- Disagree	11.97	8.33
	- Strongly disagree	13.40	10.42
9	There is shortage of textbooks/reference books		
	- Strongly agree	21.74	39.58
	- Agree	16.30	31.25
	- Undecided	0.00	5.21
	- Disagree	36.97	14.58
	- Strongly disagree	25.00	9.38

Source: Survey questionnaire

Table 5 shows that in both universities there is serious shortage of library spaces. Moreover, there is shortage of textbooks/reference books in BDU but majority of responses obtained depicted that this is not the case in AAU.

**TABLE 6: PROBLEMS RELATED TO STUDENTS PARTICIPATION**

No	Item	AAU	BDU
10	Students are not actively participated in teaching-learning process	Percent	Percent
	- Strongly agree	48.91	54.17
	- Agree	27.17	31.
	- Undecided	5.43	0.00
	- Disagree	16.30	4.17
	- Strongly disagree	13.04	6.25
11	Lack of practical exercises in organizations		
	- Strongly agree	32.61	46.88
	- Agree	25.00	33.33
	- Undecided	9.78	0.00
	- Disagree	15.22	11.46
	- Strongly disagree	17.39	8.33

Source: Survey questionnaire

As indicated in table 6, majority of respondents strongly agree that students are not actively participated in teaching-learning process. Interview responses show that students didn't ask questions in classroom discussions. They didn't answer questions asked by instructors. Most interviewees agreed that students' performance is poor nowadays and they do not show efforts to improve their poor performance. Moreover, majority of these respondents strongly agree that they lack practical exercises/practices of activities in organizations.

**TABLE 7: PROBLEMS RELATED TO TEACHING METHODS AND ASSESSMENT**

No	Item	AAU	BDU
12	Teaching methods are varied as per topic of discussion	Percent	Percent
	- Strongly agree	7.61	12.50
	- Agree	14.13	21.88
	- Undecided	0.00	6.25
	- Disagree	56.52	44.79
	- Strongly disagree	21.74	14.58
13	Instructors use continuous assessment to evaluate students performance		
	- Strongly agree	0.00	7.29
	- Agree	10.87	12.50
	- Undecided	0.00	6.25
	- Disagree	25.00	57.29
	- Strongly disagree	64.13	16.67
14	Instructors give timely feedback for students' assessment results		
	- Strongly agree	8.70	11.46
	- Agree	14.13	7.29
	- Undecided	5.43	0.00
	- Disagree	46.74	54.17
	- Strongly disagree	25.00	27.08

Source: Survey questionnaire

Table 7 shows that majority of respondents in both universities strongly agree that instructors did not vary their teaching methods based on their topic of discussion. Respondents reported that instructors use lecturing in almost all cases in both universities. The obtained result also shows that continuous assessment is not being implemented in both universities. Moreover, instructors didn't give timely feedback for students' assessments in both universities.

**IMPACTS OF INSTRUCTIONAL FACILITIES TO PROVIDE QUALITY EDUCATION**

Various questions were posed for respondents to assess impacts of shortage of instructional facilities in respondents' university. The results obtained are reported below.

**TABLE 8: IMPACTS OF SHORTAGE OF INSTRUCTIONAL FACILITIES ON PROVIDING QUALITY EDUCATION**

No	Item	AAU	BDU
15	Textbooks/reference materials	Percent	Percent
	- Very high	19.57	35.42
	- High	16.30	29.17
	- Average	13.04	19.79
	- Low	28.26	8.33
	- Very low	22.82	7.29
16	LCD and computer		
	- Very high	6.52	31.25
	- High	14.13	27.08
	- Average	16.30	17.71
	- Low	35.87	13.54
	- Very low	27.17	10.42

Source: Survey questionnaire

Table 8 shows that impact of lack of textbooks and reference materials are high in BDU. However, its impact is low in AAU. This implies that there is no shortage of textbooks and reference materials in AAU but there is shortage of these important educational inputs in BDU. Moreover, the impacts of shortage of LCDs and computers are very high in affecting quality of education in BDU but this is not the case in AAU as majority of respondents reported as its impact is low. Interview responses indicate that in both universities instructors have good access and use of LCDs and laptops in the teaching-learning process.

**TABLE 9: IMPACTS OF SHORTAGE OF LIBRARY SPACE AND OFFICES FOR INSTRUCTORS**

No	Item	AAU	BDU
17	Library spaces	Percent	Percent
	- Very high	10.87	29.17
	- High	13.04	35.42
	- Average	9.78	19.79
	- Low	35.87	9.38
	- Very low	30.43	6.25
18	Office for instructors		
	- Very high	9.78	34.38
	- High	11.96	28.13
	- Average	11.96	18.75
	- Low	38.04	10.42
	- Very low	28.26	8.33

Source: Survey questionnaire

Table 9 shows that shortages of library spaces also affect the teaching-learning process in BDU but this is not the case in AAU. Majority of respondents from BDU reported that impact of shortage of offices for instructors is very high. But its impact is low in AAU.

**TABLE 10: IMPACTS OF SHORTAGE OF PEDAGOGICAL CENTRES ON PROVIDING QUALITY EDUCATION**

No	Item	AAU	BDU
19	Pedagogical centres/teaching aids	Percent	Percent
	- Very high	28.26	30.21
	- High	36.96	34.38
	- Average	17.39	18.75
	- Low	11.96	9.38
	- Very low	5.43	7.29

Source: Survey questionnaire

Pedagogical centre where teaching aids are stored and get ready to make the teaching learning process practical is important in education system. A question was posed to respondents on impact of this important centre. The result obtained shows that there is no pedagogical centre in business and economics faculties of both universities and table 10 shows that this affects the teaching-learning process highly.

#### FACTORS THAT HINDER OFFERING QUALITY EDUCATION

There are different factors that hinder offering quality education (Berhanu, 2009). In this topic factors affecting quality of education from students' side will be presented.

**TABLE 11: STUDENTS INTEREST AND PREFERENCE IN THE TEACHING-LEARNING PROCESS**

No	Item	AAU	BDU
20	Have motivation to participate in class	Percent	Percent
-	Most students	5.43	11.46
-	Average number of students	18.48	10.42
-	Few students	52.17	57.29
-	Very few students	23.91	20.83
21	Attend class if attendance is taken		
-	Most students	53.26	43.75
-	Average number of students	25.00	23.96
-	Few students	8.70	9.38
-	very few students	13.04	22.92
22	Prefer to read handouts than textbooks		
-	Most students	67.39	53.13
-	Average number of students	14.13	14.58
-	Few students	9.78	11.46
-	Very few students	8.70	16.67

Source: Survey questionnaire

Table 11 above clearly shows that few numbers of students have motivation to participate in class discussions in both universities. Moreover, most students attend classes if attendance is taken during course offering. Students do not have motivation to participate in class discussions, the teaching-learning processes followed by instructors in both universities are lecture type. Active learning approach is not being used. Moreover, table 11 indicates that most students prefer to read handouts compiled and distributed by their instructors than reading textbooks of courses in both universities. This affects quality of education offered as students are shallowly involved in the teaching-learning process.

**TABLE 12: PREFERENCE OF STUDENTS IN ASSESSMENT**

No	Item	AAU	BDU
23	Prefer to be assessed twice than continuously	Percent	Percent
-	Most students	46.74	54.17
-	Average number of students	22.83	23.96
-	Few students	13.04	15.63
-	Very few students	17.39	6.25
24	Prefer objective questions than essays and cases to appear on exams		
-	Most students	42.39	45.83
-	Average number of students	28.26	29.17
-	Few students	19.57	14.58
-	very few students	9.78	10.42

Source: Survey questionnaire

Continuous assessment is very essential to provide quality education. If continuous assessment is being used, students get immediate feedbacks and learn from their mistakes. Table 12 shows that most students in both universities prefer to be assessed twice than continuously. Moreover, essays and case study assesses higher level of students' learning. A question was posed to assess students' preference in this respect. The results obtained shows that most students prefer objective type questions than essays and case studies to appear on exams.

**TABLE 13: STUDENTS PRACTICES IN TEACHING-LEARNING PROCESS**

No	Item	AAU	BDU
25	Attend classes regularly	Percent	Percent
-	Most students	48.91	48.96
-	Average number of students	30.43	32.29
-	Few students	11.96	9.38
-	Very few students	8.70	9.38
26	Ask questions related to their subject matter		
-	Most students	13.04	16.67
-	Average number of students	20.65	14.58
-	Few students	28.26	31.25
-	very few students	38.04	37.50

Source: Survey questionnaire

Table 13 shows that most students attend classes regularly in both universities. Asking questions, getting clarifications from subject instructors is very important for students. This increases students' participation in classroom discussions. The responses obtained clearly show that very few students ask questions related to their subject matter in both universities.

#### RELATIONSHIPS BETWEEN INSTRUCTORS' VIEWS OF QUALITY EDUCATION AND THEIR PRACTICES

Instructors' views of quality education may affect their practices. Various questions were posed to assess instructors' views of quality education and their practices.

#### INSTRUCTORS PRACTICES OF PREPARING ASSESSMENT QUESTIONS

Questions were raised to assess instructors' practices of preparing assessment questions and responses obtained are reported in table 14.

TABLE 14: INSTRUCTORS PRACTICES OF PREPARING ASSESSMENTS

No	Item	AAU	BDU
27	Instructors prepare challenging problems and cases on examinations	Percent	Percent
	- Strongly agree	13.04	15.63
	- Agree	8.70	12.50
	- Undecided	2.17	5.21
	- Disagree	48.91	41.67
	- Strongly disagree	27.17	25.00
28	Most examination questions are prepared directly from handouts		
	- Strongly agree	13.04	41.67
	- Agree	9.78	27.08
	- Undecided	6.52	0.00
	- Disagree	43.48	19.79
	- Strongly disagree	27.17	11.46

Source: Survey questionnaire

Table 14 depicted that instructors in both universities do not prepare challenging questions and cases on examinations to evaluate students' performances. Respondents from BDU reported that most exam questions are prepared directly from handouts. But this condition is not the same at AAU.

TABLE 15: INSTRUCTORS PRACTICES OF ASSIGNING LETTER GRADES

No	Item	AAU	BDU
29	Instructors give pass letter grade only if students do 50% and above of entire assessment results correctly	Percent	Percent
	- Strongly agree	8.70	9.38
	- Agree	16.30	12.50
	- Undecided	4.34	3.13
	- Disagree	38.04	39.58
	- Strongly disagree	32.61	35.42

Source: Survey questionnaire

Table 15 shows that even if students perform less than 50% of examination results correctly they may get pass mark which is contrary to the education and training policy of the country which indicates pass grade of 50% for a course (MOE, 1994). Moreover, according to information obtained from interviewees there are no guidelines to be followed to manage educational quality in both universities.

TABLE 16: INSTRUCTORS PRACTICES RELATED TO COURSE COVERAGE

No	Item	AAU	BDU
30	Instructors cover their course contents using their time properly	Percent	Percent
	- Strongly agree	9.78	30.21
	- Agree	14.13	45.83
	- Undecided	0.00	9.38
	- Disagree	40.23	6.25
	- Strongly disagree	35.87	8.33

Source: Survey questionnaire

Table 16 shows that AAU instructors don't cover their course contents using their time properly; however this is not the case in BDU. This may imply that BDU students are not exhausted during end of the semesters by makeup classes to cover course contents. But AAU students may be busy during this time to cover course contents by makeup classes or they miss course contents uncovered. This has negative impact on providing quality education in AAU.

## FINDINGS

Majority of respondents agreed that instructors of AAU and BDU lack teaching skill, they do not give timely consultation for their students and there is shortage of library space in both universities. Moreover, there is shortage of textbooks/reference books in BDU but this is not the case in AAU.

Majority of respondents reported that students are not actively participated in teaching-learning process, students lack practical exercises/practices of activities in organizations and instructors did not vary their teaching methods based on their topic of discussion. Instructors use lecturing in almost all cases in both universities.

According to most respondents continuous assessment is not being implemented and instructors did not give timely feedback/answers for students assessment results in both universities.

Majority of respondents reported that impact of lack/shortage of textbooks and reference materials, library spaces, LCDs /computers and offices for instructors are high in negatively affecting quality of education in BDU but this is not the case in AAU.

Majority of respondents reported that few number of students have motivation to participate in class discussions. Most students attend classes if attendance is taken during course offering. Moreover, most students prefer to read handouts than reading textbooks of courses in both universities.

Most students prefer to be assessed twice than continuously. This has negative impact on instructors to implement continuous assessment. Moreover, results obtained shows that most students prefer objective type questions than essays and case studies to appear on examinations.

Instructors in both universities do not prepare challenging questions and cases on examinations to evaluate students' performances. According to majority of respondents from BDU most examination questions are prepared directly from handouts. But this condition is not the same in AAU.

According to majority of respondents even if students perform less than 50% of examination results correctly they may get pass mark which is contrary to the education and training policy of Ethiopia which indicates pass grade of 50% for a course (MOE, 1994).

Majority of AAU respondents reported that AAU instructors do not cover their course contents using their time properly; however, this is not the case in BDU.

## RECOMMENDATIONS

The following recommendations are made to improve quality of education in both universities.

- AAU and BDU should provide teaching skill development training for its instructors. Moreover, instructors should give immediate feedback for their students' performance. Instructors should prepare questions at the end of every lecture so that they will have test specification and this will help them to avoid repeating previous years' examination questions. They should also have scheduled consultation hours and act accordingly in advising their students. Instructors should engage in continuous assessment of their students' performance.
- BDU educational managers should work towards supply of necessary instructional facilities that helps to improve quality of education.

- Instructors should take attendances at the end of every period. There should also be other mechanisms such as using continuous assessments to improve participation of students in class discussions. Furthermore, there should be practical attachments with organizations to make teaching-learning process practice oriented.
- Instructors should act according to the education and training policy of the nation. There should be fixed scale grading system for all courses of each business and economics program of both AAU and BDU.

## CONCLUSIONS

Most instructors in AAU and BDU have lack of teaching skills and instructors do not give timely consultation for their advisees. Instructors repeat previous years' exam questions. Moreover, continuous assessment is not being implemented in both universities.

Students in both universities do not actively participate in teaching-learning processes. They lack practical exercises of activities in organizations. Students have no motivation to participate in class discussions. Most students attend classes if attendance is taken during course offering. Most students in both universities prefer to read handouts than reading textbooks of courses.

In both universities, even if students perform less than 50% of examination results correctly there is a chance to get pass letter grade which is contrary to the education and training policy of the country.

## LIMITATION OF THE STUDY

- Due to budget limitation I excluded some programs in business and economics faculties. Another limitation of this study is that only percentage distributions are used to analyse data, other methods of data analysis are not used.

## SCOPES FOR FURTHER RESEARCH

Further investigation is recommended: to know why students do not want to attend classes regularly, to improve motivation of students in class discussions, to implement practical attachments with organizations that helps to improve quality of education.

## ACKNOWLEDGEMENTS

I would like to thank Business and Economics College of BDU for giving me the chance and budget to undertake this research. I also like to thank students and instructors of business and economics faculties of AAU and BDU who were willingly participated in this research. I realize that I cannot mention everyone so that I thank all who has assisted me to accomplish this research.

## REFERENCES

1. Ahistrom, K.G. and D. Kallos, (1995), "Conceptualizing Quality: Recent Discussions on Teachers and Teacher Education." European Journal of Education, Vol.18, No.1.
2. Alexander, Robin, (2000), "Culture and Pedagogy." Blackwell Publishing, Malden.
3. Ball, C., (1995), "What the Hell is Quality? In Fitness for Purpose Essays in Higher Education." Guildford: SHRE and NFER/ Nelson.
4. Berhanu A. (2009): "Quality of Education Vs Teachers' Effectiveness and School Facilities: The Case of Waghimra Zone Primary Schools." Thesis, BahirDar University, BahirDar.
5. Chalmers, D (2008): "Indicators of University Teaching and Learning Quality." Viewed on September 12/2011 <http://www.oecd.org/site/eduimhe08/41216416.pdf>
6. Coombe, T.,(1991)," A Consultation on Higher Education in Africa. A Report on the Ford Foundation and Rock Feller Foundation." The Rock feller, New York.
7. Drill, D., (1995), "Through Deming's Eyes: Across National Analysis of Quality Assurance Policies in Higher Education." Utrecht: The Netherlands.
8. Good, T.L. and Brophy, J.E., (1995), "Educational Psychology: A Realistic Approach (4<sup>th</sup> ed.)" Nicholas publishing Company, New York.
9. Green, D. (ed.), (1994), "What is Quality in Higher Education? The Society for Research in Higher Education and Open University." Buckingham, Great Britain.
10. Hay, C. Bayne- J., C. and Wood, M., (2000), "Improving Quality in Education." Biddles Ltd, London.
11. MOE., (2005), " Education statistics annual abstract." Addis Ababa.
12. MOE., (1994), "Education and training policy." Addis Ababa
13. Mulu N. (2012): "Quality and Quality Assurance in Ethiopian Higher Education: Critical Issues and Practical Implications." Thesis, Twente University, Twente.
14. Robbert, P.M. and Gobb. C.E (2001): "Quality Education is a Civil Rights Issue." Viewed on September 20/2010 <http://www.ed.letter.org>.
15. Shetman, Z. and Good Fried, L., (1993), " Assessing the Performance and Personal Traits of Teacher Education Students by a Ground Assessment Procedure: A Study of Concurrent and Construct Validity." Journal of Education, Vol. 44, No.2, pp.130 – 138.
16. Tekeste Negash,(1990), " The Crises of Ethiopian Education: Some Implications for Nation Building." Uppsala University press, Uppsala.
17. UNESCO., (2004),"EFA Global Monitoring Report 2005: Education for All - The Quality Imperative." UNESCO, Paris.
18. UNESCO., (2006),"Teachers and Educational Quality: Monitoring Global Needs for 2015." UNESCO Institute for Statistics, Montreal.
19. Winch, Christopher., (1996)," Quality and Education." Black Well publisher, London.

## APPENDIX

### APPENDIX-A- QUESTIONNAIRE

#### BAHIR DAR UNIVERSITY

#### BUSINESS AND ECONOMICS COLLEGE

#### QUESTIONNAIRE ON QUALITY OF EDUCATION IN BUSINESS AND ECONOMICS PROGRAMS OF AAU AND BDU

The purpose of this questionnaire is to collect views of AAU and BDU business and economics students and instructors on quality of education offered in their faculty. Feedbacks from respondents will help to identify existing problems and forward recommendations to contribute to improvement of quality education.

Dear respondents, I would like to assure you that information you provide is used only for educational purposes. To this end, you are kindly requested to give your genuine views and suggestions. Do not specify your name!

**Thank you in advance!**

#### Instruction

Please, give suitable information.

#### PART I: RESPONDENTS BACKGROUND

1. Your university \_\_\_\_\_
2. Your Sex 1. Male 2. Female
3. Your major field of study \_\_\_\_\_
4. Your education level \_\_\_\_\_

**PART II: MAJOR PROBLEMS RELATED TO OFFERING QUALITY EDUCATION IN YOUR FACULTY**

\*\* . Please mark "✓" in the box given where: 5=strongly agree 4=agree 3= undecided 2=disagree 1= strongly disagree

S.no	Item	5	4	3	2	1
5	There are shortage of qualified Instructors by level of education					
6	Instructors lack teaching skill					
7	Instructors do not give timely consultation for students					
8	There is shortage of library space					
9	There are shortage of textbooks/reference books					
10	Students are not actively participated in teaching-learning process					
11	There is lack of practical exercises in organizations					
12	Teaching methods are varied as per topic of discussion					
13	Instructors use continuous assessment to evaluate students' performance					
14	Instructors give timely feedbacks/answers for students' assessment results					

**PART III-IMPACTS OF INSTRUCTIONAL FACILITIES TO PROVIDE QUALITY EDUCATION IN YOUR FACULTY**

5=very high 4=high 3=average 2= low 1= very low

S.no	Item	5	4	3	2	1
15	Textbooks/reference materials					
16	LCDs and Computers					
17	Library space					
18	Offices for instructors					
19	Pedagogical centres/teaching aids					

**PART IV- FACTORS THAT HINDER OFFERING QUALITY EDUCATION ON STUDENTS' SIDE**

4=Most students 3= Average number of students 2=few students 1=very few students

S.no	Item	4	3	2	1
20	Have motivation to participate in class discussions				
21	Attend class if attendance is taken				
22	Prefer to read handouts than textbooks				
23	Prefer to be assessed twice than continuously				
24	Prefer objective questions than essays and cases to appear on exams.				
25	Attend classes regularly				
26	Ask questions related to their subject matter				

**PART V- RELATIONSHIP BETWEEN INSTRUCTORS' PERCEPTION OF QUALITY EDUCATION AND THEIR PRACTICES**

5=strongly agree 4=agree 3= undecided 2=disagree 1= strongly disagree

S.no	Item	5	4	3	2	1
27	Most instructors prepare challenging problems and cases on examinations					
28	Most exam questions are prepared directly from handouts					
29	Instructors give pass letter grade only if students do 50% of the entire assessment results correctly					
30	Instructors cover their course contents using their time properly					

31. What are the major problems related to teaching-learning practices in your faculty?

32. What solutions would you recommend to solve these problems?

**APPENDIX-B- INTERVIEW GUIDES****BAHIR DAR UNIVERSITY****BUSINESS AND ECONOMICS COLLEGE****INTERVIEW QUESTIONS ON QUALITY OF EDUCATION IN BUSINESS AND ECONOMICS PROGRAMS OF AAU AND BDU**

Dear respondents, I would like to assure you that information you provide is used only for educational purposes. Therefore, you are kindly requested to give your genuine responses. Do not specify your name!

Thank you in advance!

1. What are major challenges to offer quality education in your faculty?
2. What can you comment on dedication of instructors in performing their duties?
3. How can you remark on academic performance of students in your faculty?
4. How do you comment on efforts of students to improve their academic performances?
5. How do you evaluate teaching methods used by instructors in your faculty?
6. What do you comment on assessment methods used by instructors in your faculty?
7. What guidelines are followed to manage educational quality in your faculty?
8. What will you recommend to improve educational quality in your faculty?

**FACTORS AFFECTING APPLICABILITY OF SECURITY CONTROLS IN COMPUTERIZED ACCOUNTING SYSTEMS**

**AMANKWA, ERIC**  
**LECTURER**  
**DEPARTMENT OF ICT**  
**PRESBYTERIAN UNIVERSITY COLLEGE**  
**GHANA**

**ABSTRACT**

*The challenges of security controls applicability in computerized accounting systems have been widely cited in the literature but research on the critical factors for preliminary and ongoing security controls application success is rare and fragmented. The purpose of this study therefore, is to investigate the critical factors affecting the application of security controls in Computerized Accounting Systems. The study also attempted to develop a framework for effective implementation of security controls in Computerized Accounting Systems throughout the system's lifecycle. Through a critical review of literature and empirical study using personal interviews, ten (10) factors were found to be critical for security controls applicability in computerized accounting systems - The study therefore found factors such as; Executive Support, Standardized IT Infrastructure, Experienced Project Manager, Security Awareness, Clear Security Objectives, Trained Human Resources, Organizational Culture, Total Cost of Ownership, Cryptographic mechanisms and User Involvement as critical. The Critical factors identified were classified into stages (chartering, project, shakedown, onward and upward) in Markus and Tanis' process-oriented model, to develop a comprehensive framework for practitioners and scholars.*

**KEYWORDS**

Critical Factors, Applicability, Security Controls, Computerized Accounting, Information Systems.

**INTRODUCTION**

The importance of Security Controls in any computerized system cannot be overemphasized. A Security Control is a system that prevents, detects or corrects unlawful events in an organization. Security controls are needed in Computerized Accounting Information Systems (CAIS) to reduce losses (risks) by lowering likelihood of occurrence or by reducing the impact after a risk has occurred.

Computerized Accounting Information System (CAIS) faces serious security threats that may arise from the weakness of their security controls or from the nature of the competitive environment as the need for information is greater (Hayale and Khadra, 2006). At the same time, the very survival of organization depends on correct management, security and confidentiality of their information (Eduardo and Marino, 2005), since information assets constitute a significant proportion of an entity's market value (ITGI, 2001). A growing body of research had also indicated that the existence and adequacy of security controls to protect Computerized Accounting Information Systems (CAIS) is essential (Abu-Musa, 2006) for the assurance of confidentiality, integrity and continuous availability of vital information for business continuity. COBIT's 2005 framework and Hicks (1999) have also touted security controls as indispensable to ensure more timely, accurate, relevant and reliable information from IT systems. Microsoft Corporation (2006), Flowerday & Rossouw (2005) and Amankwa (2012) have also stated that controls are also needed in Information Systems to prevent, detect and correct unlawful events with the capability of reducing the accuracy and reliability of information.

**LITERATURE REVIEW****SECURITY CONTROLS OF COMPUTERIZED ACCOUNTING INFORMATION SYSTEMS**

According to Laudon & Laudon (2010), IS Controls can be manual and automated, and consists of both general and application controls. A Security Control is a system that prevents, detects or corrects unlawful events in an organization. The purpose of a security control is to reduce losses (risks) by lowering likelihood of occurrence or by reducing the impact after a risk has occurred.

Proper implementation of the selected security controls for an information system is very important, which can have major implications on the operations and assets of an organization. Security controls are the management, operational, and technical safeguards or countermeasures prescribed for an information system to protect the confidentiality, integrity, and availability of the system and its information. A growing body of research indicates that the existence and adequacy of security controls to protect Computerized Accounting Information System (CAIS) is essential for the assurance of confidentiality, integrity and continuous availability of vital information for business continuity. The adequacy of security controls in this research is therefore defined as the ability of implemented security controls to ensure confidentiality, integrity, and availability of information to support managerial decision making. *Confidentiality* means security controls must prevent the disclosure of information to unauthorized individuals or systems; *Integrity* means that controls must prevent unauthorized modification of information and *Availability* means that implemented controls of CAIS must ensure prevention of unauthorized withholding of information or resources (Gollman, 2006). In other words implemented controls must not deny authorized users access to information.

The CEO and the CFO are required by Section 302 of the Sarbanes-Oxley Act to certify that financial statements fairly present the results of the company's activities and also require them to certify that they have evaluated the effectiveness of the organization's internal controls. Security control is a key component of internal control and systems reliability. The Trust Services Framework developed by the AICPA and the Canadian Institute of Chartered Accountants addresses a subset of the issues covered by COBIT, focusing specifically on five aspects of information systems controls and governance that most directly pertain to systems reliability: Security, Confidentiality, Privacy, Processing Integrity, and Availability.

In a theoretical study conducted by Buttross and Ackers (1990), microcomputer security exposure and microcomputer organizational, hardware, software and data security controls were discussed. Their study provided security controls checklist that could be used to help the internal auditors in evaluating computer security.

In any current review Henry's (1997) contribution cannot be overlooked. Henry (1997) surveyed 261 companies in the US, to determine the nature of their accounting systems and security in use. Seven basic security methods were presented in his study. These methods were encryption, password access, backup of the data, viruses' protection, and authorization for system changes, physical system security and periodic audit. Relevant controls from this study were selected for implementation in this study.

Another study, carried out by Qurashi & Siegel (1997), assured the accountant's responsibility to check the security of the computer system. The researchers carried out a theoretical study to develop a security checklist. This list covers the following four security controls groups, which are Client policy, Software security, Hardware security and Data security.

The IT Governance Institute (ITGI) and the Information Systems Audit and Control Foundation (ISACA) (1992) developed the Control Objectives for Information and Related Technology (COBIT). COBIT provides managers, auditors, and IT users with a set of generally accepted IT control objectives to assist them in maximizing the benefits derived through the use of IT and developing the appropriate IT governance and control in their organizations. Many of the COBIT security controls were selected and incorporated in the proposed security controls to be empirically tested in the CAIS environment at the PUCG.

Moscove and Stephan (2001) consider that e-business organizations should maintain a group of control procedures to protect their systems from any possible threats, such procedures includes:

1. Physical access control procedures.
2. Password control procedures.
3. Data encryption such as public key encryption.
4. Disaster recovery plan (DRP).
5. Software-based security control, such as firewalls.
6. Intrusion detection software to detect unauthorized entrance into the system

In a study carried out by Zviran and Haga (1999) to evaluate password security as one of the most common control mechanisms for authenticating users of CAIS, it was found that despite the widespread use of passwords, little attention has been given to the characteristics of their actual use. Core characteristics of user-generated passwords and the associations among those characteristics were investigated in the study.

Abu Musa (2006) also performed an empirical study to investigate and evaluate the existence and adequacy of implemented CAIS security controls in Saudi organizations using a proposed security controls checklist. The proposed security controls check list included; organizational controls, hardware and physical access control, software control, data security control and off-line data and program security control.

Drawing upon Abu-Musa (2006), Microsoft Corporation (2006) took the study a step further and categorized security controls under Organizational, Operational and Technological controls, with each of the categories consist of preventative controls, detection controls and management controls.

In a very recent publication, SANS Cyber Defense (2010) presented a Consensus Audit Document stating the Twenty Critical Security Controls for effective cyber defense. A powerful consortium brought together by John Gilligan (previously CIO of the US Department of Energy and the US Air Force) under the auspices of the Center for Strategic and International Studies, agreed upon these top twenty critical security controls. The NSA, US Cert, the Department of Energy Nuclear Laboratories, DoD JTF-GNO, Department of State, DoD Cyber Crime Center plus the top commercial forensics experts and pen testers that serve the banking and critical infrastructure communities were all members of the Consortium. Security controls presented included;

1. Inventory of Authorized and Unauthorized Devices
2. Inventory of Authorized and Unauthorized Software
3. Secure Configurations for Hardware and Software on Laptops, Workstations, and Servers
4. Boundary Defense
5. Maintenance, Monitoring, and Analysis of Security Audit Logs
6. Application Software Security
7. Controlled Use of Administrative Privileges
8. Controlled Access Based on Need to Know
9. Continuous Vulnerability Assessment and Remediation
10. Malware Defenses

### CRITICAL SUCCESS FACTORS

These are factor whose failure could cause the computerized accounting systems and it security controls implemented to fail. A number of researchers have carried out various studies on the critical success factors for Information Systems, Security controls and Accounting Systems implementation. Those studies with direct correlation to the current study are considered in the selection of critical factors which are verified and validated in the empirical study. Selected studies and their selected critical factors are summarized in table 1 below. These factors shown in table 1 have been selected based on their frequencies of occurrence in previous studies. Only those factors which appear at least two times in previous studies have been selected to be empirically tested in the current study.

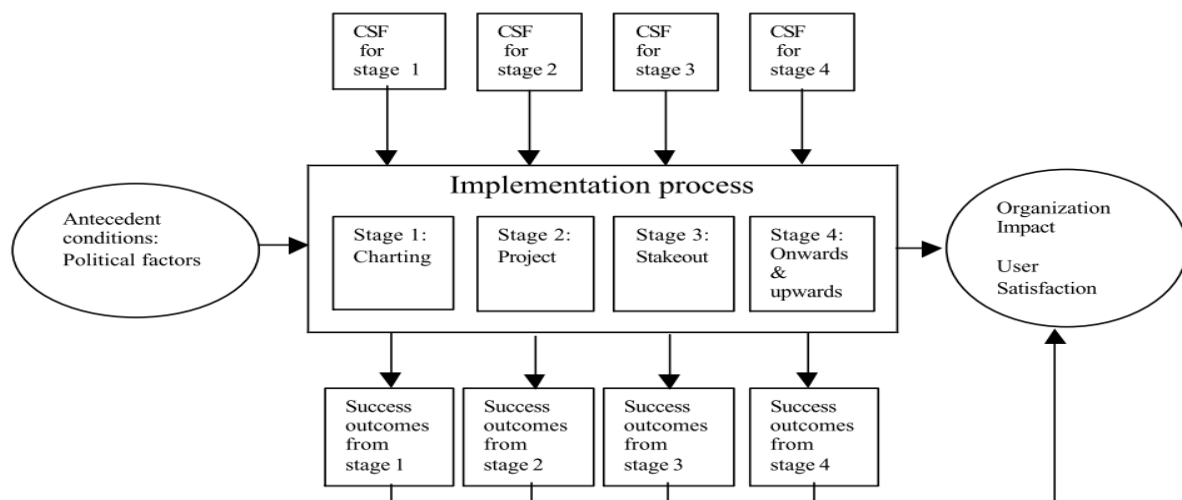
### INFORMATION SYSTEM (IS) IMPLEMENTATION MODELS

To categorized the identified factors into stages in the IS life cycle to ensure successful applicability, two success-oriented model were found useful for achieving this goal. The six-phase model developed by Cooper and Zmud (1990) which consists of initiation, adoption, adaptation, acceptance, routinization, and infusion was the first to be considered. This model provides insight on the whole dynamic process of IT innovation. It was however realized that, the lines between the stages are hard for identification by practitioners, after a critical examination of the model. This limitation was however addressed by the four-stage model of Markus and Tanis (2000). The model focuses on the sequence of events leading up to implementation completion and identified the following four phases in an information System's life cycle:

- (1) Chartering: comprises decisions leading to the funding of a system
- (2) Project: comprises activities intended to get the system up and running in one or more organizational units,
- (3) Shakedown: stabilizing, eliminating "bugs", and getting to normal operations;
- (4) Onward and upward: which continues from normal operation until the system is replaced with an upgrade or a different system.

This four-stage model was adopted for categorizing factors identified for two main reasons. First, it is deemed more comprehensible from a practitioner's perspective; second, existence of stage dependent success indicators in addition to the overall success (see fig 1) will help provide greater insight for conducting the study.

FIG. 1: RESEARCH MODEL (Markus & Tanis, 2000)



The chartering phase comprises decisions leading to funding of the CAIS project. Key players in the phase include vendors, Security consultants, company executives, and IT specialists. Key activities include initiation of ideas to implement CAIS, developing business case, decision on whether to proceed with Security Controls application or not, initiation of search for project leader/champion, selection of security controls and consultants, and project planning and scheduling.

The project phase comprises system configuration and rollout. Key players include the project manager, project team members (mainly from business units and functional areas), internal IT specialists, vendors, and Security consultants (implementation partners). Key activities include software configuration, system integration, testing, data conversion, training, and rollout. In this phase, the implementation partners must not only be knowledgeable in their area of focus, but they must also work closely and well together to achieve the organizational goal of security controls application in CAIS.

The shakedown phase refers to the period of time from "going live" until "normal operation" or "routine use" has been achieved. Key activities include bug fixing and rework, system performance tuning, retraining, and staffing up to handle temporary inefficiencies. In this phase, the errors of prior causes can be felt, typically in the form of reduced productivity or business disruption (Markus and Tanis, 2000). Hence, it is important to monitor and constantly make adjustments to the system until the "bugs" are eliminated and the system is stabilized.

The onward and upward phase refers to ongoing maintenance and enhancement of the new CAIS and relevant business processes to fit the evolving business needs of the organization. It continues from normal operation until the system is replaced with an upgrade or a different system. Key players include system developer, end users, and IT support personnel (internal and external). Security consultants may also be needed when upgrades are concerned. Key activities include continuous business improvement, additional user skill building, upgrading to new software releases, and post-implementation benefit assessment.

The phases in Markus and Tanis' (2000) IS life cycle model are in line with the stages of the traditional systems development life cycle, as presented in Figure 1. As different factors are important in different stages, it is important to classify the factors identified into the phases of IS implementation life cycle where the factors may come into play (see Figure 2). Figure 2 shows the classification of these factors into an integrative framework

## IMPORTANCE OF THE STUDY

From a practical standpoint, I.S developers, security consultants, Auditors, IT users and practitioners alike stand to gain from the findings of this study. The findings could therefore be used as a fundamental framework for implementing security controls in any computerized system. While there have been several studies on critical factors for information systems implementation, and a few on security controls implementation, none of the existing studies focused on critical factors for security controls implementation in computerized accounting systems. In view of this, this study bridges the existing research gap in Accounting and information Technology. It is also imperative to note that, the researcher at the time of this research was also unaware of any studies that investigated the critical factors affecting the applicability of security controls in computerized accounting system, hence the findings from this study provides valuable insights for top management CIO, and IT managers, to better understand non-technical issues in the systems lifecycle.

## OBJECTIVES

Despite the vast benefits promised by Security Controls, it is however imperative to realize that these benefits can be realised through the successful application of Security Controls in Computerized Systems which is also highly dependent on a number of factors. This paper therefore investigates and discusses those factors critical to the successful implementation of Security Controls in Computerized Accounting Systems. Factors identified are also categorized using Markus and Tanis (2000) model into stages of the systems lifecycle, forming a comprehensive framework for security controls applicability in computerized accounting systems.

## STATEMENT OF PROBLEM

In view of the problems above, the study attempts to; (1) investigate factors critical to the successful implementation of Security Controls in Computerized Accounting Systems and (2) proposes a framework for categorizing factors identified into stages of the systems lifecycle.

## RESEARCH METHODOLOGY

The research method adopted in this study is a qualitative approach. This is because the research question requires an in-depth study into the processes of applying security controls in computerized accounting information systems. In addition, qualitative research is applicable to this exploratory novel study with a paucity of published research in the area. It also allowed the researcher to observe and understand the context within which decisions and actions regarding security controls applicability take place.

The primary data collection approach used in this research is interview which allowed the researcher to gather rich data from relevant Actors involved in various roles around the application of security controls. Interviews also helped to verify and validate the findings in the literature. The primary data used in this study was collected from the Presbyterian University College Ghana; a private University with well-equipped accounting offices in its four campuses, headed by the college's finance director. A total of five face-to-face semi-structured interviews were performed with the identified relevant Actors in the Security Controls application process. The identified relevant Actors included the College Accountant, Finance Director, Internal Auditor, Registrar, President, and System Administrator.

The secondary data on the other hand was collected through a critical literature review process. This allowed the author to identify primary studies that can be used to investigate a specific research question (Khan et. al. 2010) Through the critical literature review, ten articles that provide answers to the question: what are the key critical factors for Security Controls application success?, were selected. These ten articles were identified through a computer search of online databases of published works and conference proceedings in the information systems area. The articles were searched by the title based on the following criteria:

- (1) "Critical success factors" + "Information System Implementation"
- (2) "Critical success factors" + "Security Controls"
- (3) "Critical factors" + "Accounting Systems implementation" + "models"

In the case where the authors had published more than one article in the area, only the latest publication was used. Among the ten articles identified, US GAO (1999) was the earliest published work, whereas the other nine articles were published between 2000 and 2012. Table 1 summarizes the results of the review.

TABLE 1: SURVEY OF FACTOR AFFECTING APPLICABILITY OF SECURITY CONTROLS

Studies/Authors	FACTORS AFFECTING APPLICABILITY OF SECURITY CONTROLS IN CAIS							
	Executive Support	IT Infrastructure	Project Manager	Trained HR	Security Awareness	Organizational Culture	Clear Security Objectives	User Involvement
Nah & Lau (2001)	*		*	*		*		
Alshbiel & Al-Awaqleh (2011)	*	*		*		*		
Al-Awadi & Renaud (2008)	*			*	*		*	
Stahl & Pease (2007)	*			*	*		*	
Intan et. al. (2012)	*			*	*	*	*	
Ngai et. al. (2004)	*	*		*				*
US GAO (1999)	*		*		*		*	*
Extreme CHAOS (2001)	*	*	*				*	*
Li et. al. (2003)	*	*	*	*			*	*
Sanchez et. al. 2005	*		*	*		*		

From the review (table 1), eight factors emerged as critical to the successful applicability of Security Controls in Computerized Accounting systems. These eight factors were obtained after careful analysis and grouping of related sub-factors. These eight factors are inclusive of all the sub-factors identified in the review. These factors identified from existing literature and those from the empirical study conducted at the PUCG, were then categorized into the respective phases (shown in figure 2) in the Information System life cycle model proposed by Markus and Tanis (2000). A discussion of the importance of these factors in the application of security controls in computerized accounting systems was made.

This method seem to be the most appropriate for this study as it allows integration of ideas and experiences from both practitioners and scholars point of view. Practitioners, through the school of hard knocks and years of experiential analysis, have learned “what” seems to work and what doesn’t. Scholars, through years of academic study and research, can tell us “why.” By joining together the “whats and the whys”, and throwing in a bit of ‘common sense’, the guidelines for successful application of Security Controls in CAIS can be strengthened. The approach parallels that of Nah and Lau (2001) and a very recent study by Iqbal et. al. (2012).

## FINDINGS/RESULTS AND DISCUSSIONS

This study sets out with the aim of *investigating factors critical to the successful implementation of Security Controls in Computerized Accounting Systems*, using the Presbyterian University College Ghana (PUCG) as a case study. A careful analysis performed on the Security-Enhanced Computerized Accounting System developed and implemented at the PUCG, showed that the selection and implementation of effective security controls in any computerized system is not adequate to ensure a successful implementation throughout the system’s lifespan. This is because; security controls are only a part of the larger system, and would need the other parts to be as effective as itself to achieve success. Just as the human system is made up of subsystems, with each performing a unique role to ensure a complete functioning human system; a computerized system is also decomposed into various sub systems. A system is defined as a set of inter-related components working within an environment to fulfil some purpose (Schwalbe, 2007). A computerized Accounting system therefore is an information system composed of hardware, software, policies (security controls), networks and people. These components must all be effective in order to achieve an effective and efficient system. If security controls are effective and working perfectly but other components such as hardware (Infrastructure), networks, software (OS) and people (Human Resource) are not effective, an efficient and successful implementation of the system cannot be realised. In other words, all components (subsystems) of the information system must be effective to ensure a successful implementation of a Security Control Computerized Accounting system.

The study therefore found factors such as; *Executive Support, Standardized IT Infrastructure, Experienced Project Manager, Security Awareness, Clear Security Objectives, Trained Human Resources, Organizational Culture, Total Cost of Ownership, Cryptographic mechanisms and User Involvement* as critical and essential for the successful implementation of security controls in any computerized accounting system. These factors are categorized into stages (Chartering phase, Project phase, Shakedown phase, onward and upward phase) of the Information Systems lifecycle using Markus and Tanis (2000) process oriented model as shown in figure 2 below.

## EXECUTIVE SUPPORT

Executive support is needed throughout the implementation. The new system must receive approval from top management (Bingi, 1999; Buckhout, 1999; Sumner, 1999) and align with strategic business goals (Sumner, 1999). This can be achieved by tying management bonuses to project success (Wee, 2000). Top management needs to publicly and explicitly identify the project as a top priority (Wee, 2000). Senior management must be committed with its own involvement and willingness to allocate valuable resources to the implementation effort (Holland et al., 1999). This involves providing the needed people for the implementation and giving appropriate amount of time to get the job done (Roberts and Barrar, 1992).

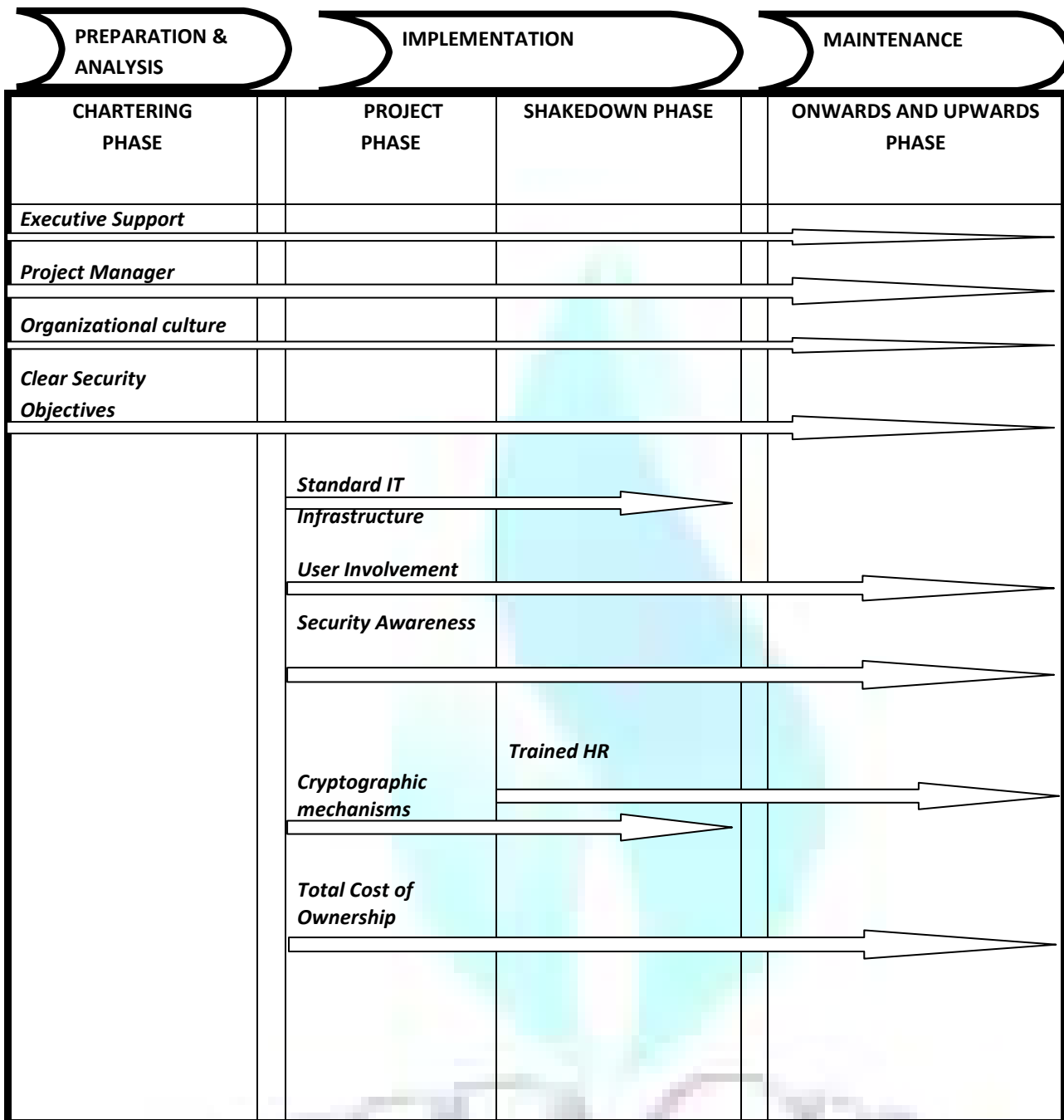
From the empirical study, it was realised that top management support is vital in all stages of the information system lifecycle. It was realised that IT support staff and security consultants could not accomplish projects without enough budget, in the shakeout stage, human resource training and policy support were necessary besides sufficient budget. In the onwards and upwards stage, the top managers should keep on supporting the project, in terms of taking feedback from key-users seriously, and maintaining and upgrading the system accordingly. This sentiment was reflected by several key IT support staff and was captured in the following quote: “...with no attention from top managers, we could do nothing but watch the system fail in the fast changing internal and external environments...” It was also realised that, the implementation of controls such as access control, segregation of duties, and other controls which puts some restrictions on users would require some backing from top management. In the empirical study conducted through interview, users emphasized their dislike for restrictions brought about as a result of the implementation of the security controls in the system. In view of this, if management do not show their total support for the success of the new system and it is left in the hands of these users to decide, the possibility of failure may be high. Hone & Eloff (2002) explain that the behaviour and attitudes of employees towards information security will be more in line with ‘secure behaviour’ if top management demonstrates concern. This therefore suggests that the tone of security is set by top management within the organization (Hinde 1998) and this would be achieved if security controls supports organizations core business functions (Blake, 2000). Executive support reflects the factors that influence managers to put commitment in security controls implementation and how employees respond to the need for having a high quality security system in the Computerized Accounting System. This relates to their actions on the ease of use and usefulness of the security system in protecting their financial information. When they support, they would change their perceptions regarding the benefits of adopting good security system (Lippert and Govindarajulu, 2006). During the empirical study, it was realized that, executive support is needed throughout the system’s lifecycle. That is, all those activities leading to implementation in the Chartering phase of the model shown in figure 2, activities during implementation (Project and Shake down phases), and activities in final (Maintenance) stage of the system’s lifecycle (that is onward and upward phase) should all be supported by top management to ensure successful applicability of security controls. In other words, the support of management is needed throughout the system’s implementation.

## ORGANIZATIONAL CULTURE

Organizational culture defined by Schein (1992) as “a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”. A culture with shared values and common aims is conducive to success. An emphasis on quality, a strong computing ability, and a strong willingness to accept new technology would aid in implementation efforts. Management should also have a strong commitment to use the system for achieving business aims (Roberts and Barrar, 1992). Users must be trained, and concerns must be addressed through regular communication, working with change agents, leveraging corporate culture and identifying job aids for different users (Rosario, 2000). Many experts believe the underlying causes of many companies’ problems are not the structure or staff, but the culture. According to Schwalbe (2007), Project work is most successful in an organizational culture where member identity, Group emphasis, Unit integration, Risk tolerance, Reward criteria, Conflict tolerance and Open-systems focus are highly prevalent. Encouraging a positive attitude throughout the organization towards the implementation of the new system is an important factor which can determine the success or failure of the system. In an organization where there is a positive culture towards information systems project, security controls applicability in computerized accounting systems is likely to receive the same positive attitude. However, where there is a negative attitude the new system may suffer. Top management must therefore encourage at all levels of the organization and inculcate in employees a positive security mindset before and during introduction of the system.

This culture of security consciousness must be present throughout the lifecycle of the system to ensure successful implementation. During analysis and preparation stage of the security controls application, management must insist and ensure a culture of security controls readiness by involving user of the system in the preparation work. This culture must be encouraged during implementation (project and shakedown phase) and after implementation (onward and upward phase) to ensure success.

FIGURE 2: CLASSIFICATION OF CRITICAL FACTORS INTO MARKUS AND TANIS IS LIFECYCLE MODEL



In the figure above, stages of the information systems lifecycle are represented by swim lanes (chartering, project, shakedown, and Onward and Upward phases) and factors are classified under these stages. Block arrows depict the stages that the identified factors fall.

### USER INVOLVEMENT

User involvement was identified as a key factor to the successful implementation of any Information System. Lack of user involvement traditionally has been the number one reason for project failure and conversely, the number one contributor to project success (CHAOS, 2001). No single quality of management practice is more highly correlated with success than employee participation. The question then becomes how to structure this participation to best ensure its success for the employee, the project and the organization. Baronas and Louis (1988) in their study to examine the effect change, propose that user acceptance of a new system would be facilitated when changes are realistically anticipated through input from knowledgeable sources; contrasts are given free expression through discussion among co-workers and between implementers and users; surprises are minimized through preview and realistic testing; and assistance is provided in coping through the availability and coaching of experienced implementers. System implementations often impose a threat of reduced control over a user's work. Baronas and Louis (1988) suggest that when employees are given the opportunity to enhance perceived control during a system implementation, they will adapt to the resultant changes and more readily accept the system. In addition, if an individual believes that the system is personally relevant, he will be more likely to form a positive attitude toward the system since attitudes are generally formed on the basis of beliefs. The strength of an individual's involvement is directly related to the extremity of his or her attitude toward the system. A high level of involvement could drive an extremely positive attitude. A low level of involvement, however, leaves a person susceptible to other influencers (e.g., persuasive forces, factual arguments). With increased user involvement and a positive attitude, users will have an increased desire to participate in implementation. Users sentiments on involvement are captured in the following quotation: "we feel that we are a part of the system when involved and would do everything possible to ensure it succeeds. Contrary we feel management want to impose the new system on us and would abandon it with the least problem that occurs" In the empirical study, it was realised that each user unit is a stakeholder and must therefore be considered. However, whether to actively involve these units in the process, who to involve and when, and how to involve them are the questions that remain unanswered. This is mainly because, choosing who to be involved requires building a team that can accomplish the tasks required of

them. It also requires building a team that will effectively represent the organizational issues that are being addressed by the project and will continue to support and integrate the new programs and processes into the post-implementation culture.

### TRAINED HUMAN RESOURCE

Training and education are important for the successful implementation of any new system (Sprague and McNurlin 1993). Human resource is a term used to describe the individuals who make up the workforce of an organization. Dhillon (1999) argues that, organizations must have ongoing education and training programs to achieve the required outcome from the implementation of an information security policy. The efficiency and effectiveness of the system rely heavily on human resources since people are needed at all levels to operate, manage and use the Security Enhanced-Computerized Accounting System. Therefore users must have the requisite skills and experience, which is the main axis on which the computerized accounting system will succeed or fail. Ngai et. al (2004) argued that adequate training of the employees in an organization is important in allowing the benefits and advantages of using the Internet in SCM to be fully realized. Human resource is required to fill multiple functions in each of the departments of accounting and Information Technology within the organization. Stephen (1989) explained that the scientific and practical qualifications, experiences, technical skills and training are the most important specifications that must be available in the staff to achieve success. Al-Taweel (2001) also pointed out that, there is a lack of efficiency in the accountants, in the fields of using accounting systems. Therefore, to ensure success, Accountants and Accounting professionals who use and interact with the Security Enhance Accounting System must be equipped with the requisite technical skills. This was evident in the empirical studies through interview, as most users emphasized the need for periodic training in order to enhance their computing efficacy to resolve challenges from the system in a timely manner. This sentiment was expressed by several users of the system and summarized in the following quote *"Since the new system with security controls may come with new features, it will be prudent to organize training for staff periodically so that challenges with the new system could be addressed. When we encounter challenges which we are unable to resolve for a long time, we would have no other choice than to abandon the system"* Training, re-skilling and professional development of the IT workforce is critical. User training should be emphasized, with heavy investment in training and reskilling of developers in software design and methodology (Sumner, 1999). Employees need training to understand how the system will change business processes. There should be extra training and on-site support for staff as well as managers during implementation.

### EXPERIENCED PROJECT MANAGER

An experienced project manager is essential for the successful implementation of IT projects (Schwalbe, 2007). Ninety-seven (97%) percent of successful projects had an experienced project manager at the helm of affairs (CHAOS, 2001). An individual or group of people should be given responsibility to drive success in project management (Rosario, 2000). First, scope should be established (Rosario, 2000; Holland et al., 1999) and controlled (Rosario, 2000). The scope must be clearly defined (Schwalbe, 2007) and be limited. This includes the amount of the systems implemented, involvement of business units, and amount of business process reengineering needed. Any proposed changes should be evaluated against business benefits and, as far as possible, implemented at a later phase (Sumner, 1999; Wee, 2000). Additionally, scope expansion requests need to be assessed in terms of the additional time and cost of proposed changes (Sumner, 1999). Then the project must be formally defined in terms of its milestones (Holland et al., 1999). The critical paths of the project should be determined. Timeliness of project and the forcing of timely decisions should be managed (Rosario, 2000). Deadlines should be met to help stay within the schedule and budget and to maintain credibility (Wee, 2000). Each of these activities must be lead by an experienced project manager who can provide direction and guidance for the success of the Information System project. Project manager's commitment is critical to drive consensus and to oversee the entire life cycle of implementation (Rosario, 2000). The project manager should also be in charge and should lead the project throughout the organization (Sumner, 1999), as transformational leadership is critical to project success. In any project, the project manager serves as the leader by providing directions for initiating, planning, executing, monitoring and controlling, and closing each phase of the project. In view of this, the project manager's expertise would be needed throughout the information system implementation cycle. People who conceive business ideas must be present and part of the team to develop plans for reaching set goal. In the same vein, those who plan must be part of the team to execute, in order to ensure proper interpretations of the plans. The project manager's experience from other projects would also be brought to bear, to ensure effective monitoring and controlling of project activities to achieve success. Therefore, an experienced project manager is needed in all stages of the system lifecycle as shown in figure 2 above.

### CLEAR SECURITY OBJECTIVES

Security objectives must be clear enough and available at all levels of the organization for the perusal of all employees and must be aligned with the overall organizational security policy. A successful security journey, like a successful Information System project, requires many things, but one thing is definitely required: the knowledge of your destination. On any project, being able to articulate the business objectives is key to success. A project without a stated destination will likely go in many directions, none of them resulting in the desired effect. Without clearly articulated and understood security objectives, not only will the road to successful implementation be bumpy, but you won't know when the desired outcome is realized because you don't know what exactly what the implemented security control is to achieve. Clear objectives help project teams prioritize their focus on performing the work that best achieves the objectives. A shared vision of the organization and the role of the new system and structures should be communicated to employees. There should be a clear business model of how the organization should operate behind the implementation effort (Holland et al., 1999). There should be a justification for the investment based on a problem and the change tied directly to the direction of the company (Falkowski et. al., 1998). Security mission should be related to business needs and should be clearly stated (Roberts and Barrar, 1992). Goals and benefits should be identified and tracked (Holland et al., 1999).

It is imperative to ensure that, all involved in the analysis and preparation (Chartering phase) work for implementation, have a clear understanding of the set security objectives to be realized from the implementation to avoid any deviations. If security objectives are clear, plans would be geared towards achieving the set goals. However, if security objectives are ambiguous and are subject to several interpretations, they would be interpreted differently by different individual. Clear security objective are required throughout the implementation processes (that is from chartering, through to project and shakedown and finally onward and upward).

### SECURITY AWARENESS

The interviews and existing literature showed that, organizations all wished to secure their information. However, they believed that information security would be achieved simply by increasing security awareness and providing training. All experts stressed the need for periodic security awareness programmes for employees. One of the experts commented: *"Years ago security awareness was zero, a lot of people thought that all they needed to be protected was to have login name and password, so we worked on training our employees to raise the awareness and this made the implementation of security controls easier"*. Furthermore they stressed that information security would need a continuous and ongoing awareness and training programme for employees to deal with the ever-changing security arena. A citation by McKay (2003) on the 2002 security awareness index report indicated that organizations around the world are failing to make their employees aware of the security issues and the consequences thereof. However, there is no evidence in the literature that awareness programs play any decisive role in reducing insecure behaviour or that it makes a difference in ensuring information security and in increasing compliance to information security policies. Notwithstanding this, making employees aware of the rationale behind the introduction of security controls, create a common understanding and cordial working relationship between employees and management. This makes both parties relaxed and more comfortable in the discharge of the duties within the organization. Top management expressed in the empirical study that *"we are now more comfortable and can trust information generated from the computerized accounting system for decision"*. Employees on the other hand indicated that *"since we know what security controls exist and what they are to achieve, we are more relaxed when working the system"*. On the part of employees, realizing the different security features introduced in the new computerized accounting system (for example, access controls, multifactor authentication, and internal audit log for ensuring non-repudiation) boosted their confidence when

working with the system. An employee indicated that, now that there is an internal audit log to monitor who did what; cases of people being accused wrongly will now be a thing of the past.

### STANDARDIZED IT INFRASTRUCTURE

Information technology standardization is a strategy for minimizing IT costs within an organization by keeping hardware and software as consistent as possible and reducing the number of tools you have that address the same basic need. The successful implementation of a Security Enhanced Computerized Accounting Information System is not only dependent on the adequacy of selected controls but also on the existence of standardized IT infrastructure. Standardizing IT infrastructure has benefit of minimizing IT cost and hence the total cost of implementing the computerized system. It may take the form of ensuring that every computer has the same operating system, or of purchasing hardware in bulk so that every PC in the office is the same make and model. The standardized infrastructure and platform introduces controls through the use of standards and policies to manage desktops and servers, how machines are introduced to the network, and the use of Active Directory directory services to manage resources, security policies, and access control. Customers in a standardized state have realized the value of basic standards and some policies, yet they are still quite reactive.

From the empirical study, it was realized that, if the IT infrastructure is not standardized, what work perfectly on one part of the network would not work on other parts. When different Operating Systems are used on computers within the network; implementing security controls becomes a daunting task, as different levels of controls would have to be implemented on the different operating systems to surmount compatibility issues. Also different versions of the security-controls enhanced computerized accounting information system would have to be developed. For instance, in an organization that uses both Windows and Linux operating systems, any information system (I.S) developed must take cognisance of this dynamics. This simply would require the development of two different versions of the same I.S, and thereby increase cost. In organizations where IT infrastructure is standardized, implementing security policies is much easier, as a single policy can be replicated in all parts of the organization without any difficulty. The lack of standardized IT infrastructure leads to inconsistent support for end user. Incidents, requests, and problems therefore become difficult to track and deal with. Standardization IT infrastructure therefore enhances user needs and user experience in order to increase productivity and amplify the impact of employees.

### TOTAL COST OF OWNERSHIP

Factors which were not present in the literature from existing empirical studies also emerged, and one of such factors is total cost of ownership (TCO). Total cost of ownership (TCO) is a financial estimate whose purpose is to help consumers and enterprise managers determine direct and indirect costs of a product or system. TCO (total cost of ownership) is recognized as the industry-standard method for the financial analysis of IT and other enterprise costs. In the face of tighter financial controls and increasingly expanding IT influence, TCO analysis is more important than ever. It's been adopted by industry-leading IT providers, users and industry analysts (Mieritz, and Kirwin, 2005). According to Mieritz, and Kirwin, (2005), "Ownership" expresses the asset-based philosophy and that all costs in TCO are embedded in "IT assets," which include IT and the people using it, all of which are owned by the enterprise. For example, TCO can be expressed as the total cost of a Windows PC, a Unix server, a structured task worker or a knowledge worker.

In the empirical studies conducted through personal interviews, it was realised that total cost of ownership is deemed an important factor to the successful implementation of an information system from both management and users perspectives. Management emphasized in the interview that if cost brought about as a result of the implementation of the new system is on the high side and is not a one-time cost, but persistently puts pressure on the organizations budget, then the organization would be forced to consider other options, irrespective of the advantages promised by the new system. User in the accounts and IT departments also shared the same view in different words by stressing that if management is unable to meet the financial requirements imposed on the organization by the new system in a timely manner, it would impact negatively on productivity, which could lead to eventual abandonment of the system.

### CRYPTOGRAPHIC MECHANISM

Cryptography is the study of how to obscure what you write so as to render it unintelligible to those who should not read it. Cryptography is used to transform usable accounting information into a form that renders it unusable by anyone other than an authorized user. Cryptography helps to protect the integrity and confidentiality of information transmitted over networks. The most frequently applied Cryptographic schemes are; Encryption algorithms, Digital signatures and Cryptographic hash functions (Gollman, 2006).

One important factor which came out during interviews with security consultants and IT staff was the choice of cryptographic mechanisms for assuring information confidentiality, integrity and availability (CIA). They argued that if the right cryptographic mechanisms are not used to ensure proper protection of vital organizational assets (information), the system would not be reliable for decision making; information will not be complete and available in a timely manner. When this goes on over a period of time, the system may lose its 'value' and the organization will be forced to phase it out.

### CONCLUSIONS AND RECOMMENDATIONS

This paper puts forward the critical success factors for security controls implementation in computerized accounting information systems (CAIS). Findings generated from existing literature and empirical studies using the Presbyterian University College Ghana (PUCG), the findings can be used as the basis for security controls implementation in other computerized systems. A total of 10 critical success factors for Security Controls implementation in CAIS have been identified, based on a review of literature and empirical studies at the PUCG. The study provides an insight into how security controls can be successfully implemented in computerized systems. The critical success factors identified in the IS implementation process offer interested practitioners a better understanding and facilitate them in adjusting their business strategies accordingly. Finally, the study categorized the critical success factors into stages in the systems lifecycle, serving as a fundamental framework for both practitioners and scholars.

### SCOPE FOR FURTHER RESEARCH

This study provides a theoretical framework for security applicability in computerized accounting systems with no empirical proofs, therefore further research could be carried out to test the framework empirically for additions and subtractions of the factors identified.

### REFERENCES

- 1 Abu-Musa A. Ahmad (2006), evaluating the security controls of computerized accounting information systems in developing countries: the case of Saudi Arabia, *The International Journal of Digital Accounting Research* Vol. 6, p. 25-64.
- 2 Al-Awadi M. and Renaud K. (2008): "Success Factors In Information Security Implementation In Organizations", *Information Resources Management Journal*, Vol. 18
- 3 Alshbiel Seif Obeid and Al-Awaqleh Qasim Ahmad (2011): "Factors Affecting the Applicability of the Computerized Accounting System, Jordanian Ministry of Health (Field Study on Governmental Hospitals in the North Territory)", *International Research Journal of Finance and Economics*, EuroJournals Publishing, Inc, ISSN 1450-2887 Issue 64
- 4 Amankwa Eric (2012): "Assessment of Security Controls in computerized Accounting Information Systems – The case of Presbyterian University College", Lambert Academic Publishing – Saarbrücken Deutschland Germany, pp.22
- 5 Baronas Ann-Marie and Meryl Reis Louis, (1988) "Restoring A Sense of Control During Implementation: How User Involvement Leads to System Acceptance." *MIS Quarterly*, March, 1988, (12:1), pp. 111-123
- 6 Bingi, P., Sharma, M.K. and Godla, J. (1999), "Critical issues affecting an ERP implementation", *Information Systems Manag*
- 7 Black, S., 2000. Protecting the Network Neighbourhood. *Security Management*, Vol. 44, No. 4, pp. 65-71.

- 8 Buckhout, S., Frey, E. and Nemec, J. Jr (1999), "Making ERP succeed: turning fear into promise," IEEE Engineering Management Review, pp. 1
- 9 Buttross, T.E.; Ackers, M.D. (1990): "A Time - Saving Approach To Microcomputer Security", Journal Of Accounting & EDP, vol. 6, Iss. 1, pp.3135. – 35
- 10 Control Objective for Information and related Technology (COBIT), 4<sup>th</sup> Edition, (2005), COBIT FRAMEWORK 4.0, IT Governance Institute press, USA
- 11 Cooper, RB & Zmud, RW (1990), 'Information Technology Implementation Research: A Technology Diffusion Approach', Management Science, vol. 36, no. 2, pp.123-139.
- 12 Dhillon, G., 1999. Managing and Controlling Computer Misuse. Information Management & Computer Security, Vol. 7, No. 4, pp. 171-175.
- 13 Eduardo Frenandez-Medina and Marino Piattini, "Designing Secure Databases", Information and Software Technology Journal, Vol. 47, 2005.
- 14 Extreme CHAOS (2001), The Standish Group International Inc.
- 15 Falkowski, G., Pedigo, P., Smith, B. and Swanson, D. (1998), "A recipe for ERP success", Beyond Computing, pp. 44-5.
- 16 Fiona Fui-Hoon Nah and Janet Lee-Shang Lau (2001): "Critical factors for successful implementation of enterprise systems", Business Process Management Journal, Vol. 7 No. 3, 2001, pp. 285-296
- 17 Flowerday Stephen and Rossouw Von Solms (2005), Real-time information integrity=system integrity+data integrity+ continuous assurances, Computers & Security, Volume 24, Issue 8, Pages 604-613
- 18 Gollmann Dieter (2006), Computer Security-2<sup>nd</sup> Ed. John Wiley & sons Inc, England.
- 19 Hayale Talal H. and Khadra Husam A. Abu (2006), "Evaluation of The Effectiveness of Control Systems in Computerized Accounting Information Systems: An Empirical Research Applied on Jordanian Banking Sector". Journal of Accounting – Business & Management, volume 13, pp. 39-68.
- 20 HENRY, L. (1997): "A Study of the Nature and Security of Accounting Information Systems: The Case of Hampton Roads, Virginia", The Mid-Atlantic Journal of Business, vol. 33, Iss. 63, pp.171-189.
- 21 Hicks J.R (1999) Accounting Packages, Portsmouth Business School Press, p. 7-10
- 22 Hind, S. 2002. Security Surveys Spring Crop. Computers and Security, Vol. 21, No. 4, pp. 310-321.
- 23 Holland, P., Light, B. and Gibson, N. (1999), "A critical success factors model for enterprise resource planning implementation", Proceedings of the 7th European Conference on Information Systems, Vol1, pp.273-97.
- 24 Holland, P., Light, B. and Gibson, N. (1999), "A critical success factors model for enterprise resource planning implementation", Proceedings of the 7th European Conference on Information Systems, Vol1, pp.273-97.
- 25 Hone, K. & Elloff, J.H.P. 2002. What makes an Effective Information Security Policy. Network Security, Vol. 20, No. 6, pp. 14-16.
- 26 Intan Salwani Mohamed, Izzatul Husna, Dr Norzaidi Mohd Daud, Zakiah Baharin and Saidin Wan Ismail (2012): "Accessing Drivers for Organizational Commitment Towards the Security Controls Implementation in the Malaysian Online Service in Computer-Based Accounting System", Advances in Natural and Applied Sciences 6(8): 1223-1237
- 27 Iqbal U., E. Uppstrom, G. Juell-Skielse (2012): "Cloud ERP implementation challenges: A study based on ERP lifecycle model", Advances in Enterprise Information Systems II, Taylor & Francis Group, London
- 28 ITGI (IT Governance Institute). IT governance executive summary; board briefing on IT governance. Rolling Meadows, 2001.
- 29 José Luis Sánchez; Stefan Savin; Virginia Vasileva (2005): "Key Success Factors In Implementing Electronic Medical Records In University Hospital of Rennes", Europhamili / Aesculapius Professional Study, 2005 - ENSP Rennes, France
- 30 Laudon C. Kenneth and Laudon P. Jane (2010): " Management Information Systems, Managing the Digital firm, Eleventh edition", Pearson Education, Inc, Pp. 338
- 31 Li Huixian, Lim John, Raman K.S. (2003): "An Exploratory Case Study on IS Implementation and Organizational Change in China", Proceedings of the 11th European Conference on Information Systems, ECIS 2003, Naples, Italy
- 32 Lippert, S.K. and C. Govindarajulu, 2006. Technological, organizational, and environmental antecedents to web services adoption. Communications of the IIMA, 6(1): 146-158.
- 33 Markus, ML & Tanis, C (2000), 'The Enterprise Systems Experience - From Adoption to Success', in Framing the Domains of IT Management: Projecting the Future through the Past, ed. RW Zmud , Pinnaflex Publishing, Cincinnati, OH, pp.173-207.
- 34 McKay, J. 2003. Pitching the Policy: implementing IT Security Policy through Awareness. SANS Institute.
- 35 Microsoft Corporation (2006) information security controls - the security risk management guide [Online] Available at: <http://www.microsoft.com/Downloads/details.aspx?> [Accessed on 4<sup>th</sup> April, 2011]
- 36 Mieritz Lars and Kirwin Bill (2005): "Defining Gartner Total Cost of Ownership", Gartner Inc. ID Number: G00131837
- 37 Moscovice, Stephen A., "E-Business Security and Controls", CPA Journal, Vol. 71, Issue 11, Nov2001.
- 38 Ngai, E. W. T., Cheng, T. C. E. and Ho, S. S. M. (2004), "Critical Success Factors of Web-based Supply Chain Management System Using Exploratory Factor Analysis", Production, Planning & Control, Vol. 5, No. 6, pp. 622 - 630.
- 39 Qureshi, A.A.; Siegel, J.G. (1997): "The Accountant And Computer Security", The National Public Accountant, Washington, May, vol. 43, Iss. 3, pp. 12-15.
- 40 Roberts, H.J. and Barrar, P.R.N. (1992), "MRPII implementation: key factors for success", Computer Integrated Manufacturing Systems, Vol. 5 No. 1, pp. 31
- 41 Rosario, J.G. (2000), "On the leading edge: critical success factors in ERP implementation projects", BusinessWorld, Philippines.
- 42 SANS Cyber Defense (2010) 20 Critical Security Controls [Online] Available at: <http://www.sans.org/critical-security-controls> [Accessed on 5<sup>th</sup> November, 2010]
- 43 Schein EH. Organizational Culture and Leadership. Jossey-Bass, San Francisco. 1992.
- 44 Sprague, R. H. and Mcnurlin, B. C., 1993, Information Systems Management in Practice (New Jersey: Prentice Hall).
- 45 Stahl Stan, and Kimberly A. Pease (2007): "Effectively Managing Information Security Risk, A guide for executives", Citadel Information Group, Inc. Los Angeles. Pp. 8
- 46 Stephen A. Moscovice, Mark J., Seemkin (1989), accounting information systems for decision-making concepts and applications-, the translation of Kamal El-Din Saad, Ahmed Hamed Hajjaj, AlMareikh Publishing House, Riyadh, Saudi Arabia, 1989, p. 802, p.803.
- 47 Sumner, M. (1999), "Critical success factors in enterprise wide information management systems projects", Proceedings of the Americas Conference on Information Systems (AMCIS), pp.232-4.
- 48 United States General Accounting Office (GAO) (1999): "Information Security Risk Assessment Practices of Leading Organizations, A Supplement to GAO's May 1998 Executive Guide on Information Security Management, GAO/AIMD-00-33
- 49 Wee, S. (2000), "Juggling toward ERP success: keep key success factors high", ERP News, February, available at: <http://www.erpnews.com/erpnews/erp904/02get.htm>

# THE EFFECT OF POVERTY ON HOUSEHOLDS' VULNERABILITY TO HIV/AIDS INFECTION: THE CASE OF BAHIR DAR CITY IN NORTH-WESTERN ETHIOPIA

**GETACHEW YIRGA**

**LECTURER & RESEARCHER**

**DEPARTMENT OF ECONOMICS & INSTITUTE FOR ECONOMIC RESEARCH**

**BAHIR DAR UNIVERSITY**

**BAHIR DAR**

**SURAFEL MELAK**

**LECTURER & RESEARCHER**

**DEPARTMENT OF ECONOMICS & INSTITUTE FOR ECONOMIC RESEARCH**

**BAHIR DAR UNIVERSITY**

**BAHIR DAR**

## ABSTRACT

*Though the impact of HIV/AIDS infection on the livelihood of people is well defined, there is no sufficient empirical evidence for the reverse causation. This research aims at investigating the impact of poverty on risk of HIV infection in Bahir Dar City, Ethiopia. Primary data were collected mainly using structured questionnaire. A basic logit model is estimated for three dependent variables and analysed in addition to descriptive analysis. The later shows that poverty in the City is so widespread in terms of both quantitative and qualitative measures. The econometric findings reveal that the non-poor have higher probability of overall susceptibility towards the virus. Our data falls short of supporting the widely held view and our hypothesis that poverty directly contributes to vulnerability to HIV infection. The results call for proper implementation of the national poverty reduction strategy with local government and community participation to tackle poverty. Further, the sexual behaviour of people making them vulnerable to HIV needs to be targeted.*

## KEYWORDS

Logit regression, Poverty, Sexual behaviour, Vulnerability to HIV/AIDS.

## INTRODUCTION

The World is rapidly heading to be more urban. The recent urbanization process is much faster in the developing than in the developed world. By 2050, two-thirds of the population of the developing world is likely to live in urban settings (UNFPA, 2007). The average rate of urbanization in Africa is the highest in the world at 3.97 percent annually (van Renterghem and Jackson, 2009). The positive effects on social and economic development of urbanization have been largely documented. However, rapid and unplanned urbanization in sub-Saharan Africa (SSA) has left many with little access to public goods and prone to various communicable diseases such as HIV/AIDS. Poverty acquires both economic and non-economic connotations. It has been associated, for example, with poor health, low levels of education and inability or unwillingness to work. Poverty is becoming increasingly urban. Urban poverty may be understood as the lack of access to basic needs particularly food, shelter, health, security, basic hygiene, sanitation and water, in addition to economic security (Rae, 2001). One-third of the World's urban residents receive \$2 a day (Baker, 2009). This figure almost doubles when it comes to SSA and over 75 percent for Ethiopian urban dwellers.

The most threatening and dangerous health (of course economic and social) problem which has been controversially related to poverty is the HIV/AIDS infection. Out of the 33.4 million HIV positive people worldwide, 1.5 million are Ethiopians (UNAIDS, 2010). In 2008, over 0.88 million Ethiopian children below the age of 17 lost one or both of their parents to HIV/AIDS (Habte, 2008). A number of underlying factors contribute to the spread of HIV in Ethiopia, including poverty, illiteracy, widespread transactional sex, gender disparity, population movement (including rural to urban migration) and harmful cultural and traditional practices. The epidemic's adverse consequences (death, illness, the burden of caring for those infected, and loss of productivity) in turn exacerbate poverty, increase the numbers of orphans and are disrupting the social fabric of the community and the nation at large (FHAPCO, 2008). The virus has ruined the country's active labour force as over 90 percent of the infections strike people between ages 15 and 49 (Habte, 2008).

This study focuses on Bahir Dar, one of the fastest growing cities of Ethiopia. With a population of over 210,000 in 2007, the City is serving as the political capital of the Amhara National Regional State, the second most populous region in the country. Following the decision of being capital, the City's population has grown tremendously, stimulated primarily by migration. That has been translated into expansion of the two evils – HIV/AIDS and poverty. The HIV/AIDS prevalence rate in City was once reported as the highest in the country. A point estimate in 2009 showed that the prevalence rate in the city was 13.5% (11.8% for males and 15.4% for females), far higher than the regional average of 3.6% (BoFED, 2009). Although no dependable figures are obtained, the poverty situation in the city has also worsened as can be seen from the expansion of slums. The study, thus, attempts to find any significant effect on the susceptibility of residents to HIV/AIDS of their socioeconomic status. We capture socioeconomic status by a binary variable measuring whether or not a household is in absolute poverty.

## REVIEW OF THE LITERATURE

The link between poverty and vulnerability to communicable diseases is well established and documented. Nonetheless, the microeconomic aspect of "who is most likely to die of AIDS" (Ainsworth and Semali, 2002) - the rich or the poor - is a relatively recent and debatable issue. Findings on the relationship between poverty and degree of vulnerability to HIV/AIDS are not universal. Many studies argue that the poor are the most susceptible. Poor and uneducated people are more likely to contract sexually transmitted diseases since they are deprived of the right to information on risk behaviour, are too illiterate to understand prevention messages, have less access to quality services (Bhargava and Satihai, 2005) and lack the power with respect to negotiation of safer sex including condom use (Brook et al, 2006). Even when those information, education, and counselling activities reach the poor, they are often irrelevant and inoperable given the reality of their lives (Mbirimtengerenji, 2007). Booyesen and Summerton (2002) empirically find that poor women are less likely to be knowledgeable about HIV/AIDS and more likely to engage in risky sexual behaviour. Residential arrangements of the poor do not often afford privacy for sexual intercourse within households (Zulu et al, 2002) leading to early sexual debut by children. When the poor consider migration as a 'flight from poverty' (Mbirimtengerenji, 2007), they often finish in commercial sex work (van Donk, 2002). In general, poverty makes people hopeless so that they may sacrifice the future to ensure a better today (Tladi, 2006).

However, other studies argue otherwise – the non-poor are more likely to contract the virus. The rich, usually men, may 'purchase' the HIV in a different manner. They may be at higher risk of infection due to multiple and concurrent sexual partnerships (Tladi, 2006; Madise et al, 2007). The well-off, who can afford to lead mobile lifestyles, may interact sexually with others thereby being vulnerable to the virus. Another reason why wealthier people may have higher HIV prevalence is because they may live longer due to better nutrition and access to antiretroviral therapies (Madise et al, 2007). Similar proposition holds true for women as non-poor women are believed to have an exposure to risky sexual behaviour (Filmer, 2002; Ainsworth and Semali, 2002). After assessing the

behavioral risk factors for HIV/AIDS in and around Addis Ababa and Nazareth cities of Ethiopia, Nedi et al (2002) find that the majority of the sample had non-regular sexual partners, which was higher among students. Their study reveals that the educated, who are usually non-poor, are at a higher risk of contracting the virus.

Previous studies do not provide sufficient evidence on the precise effect of poverty on vulnerability to HIV infection. In addition, out of 36 studies reviewed by Wojcicki (2005), fifteen found no association between socioeconomic status (SES) and HIV infection, twelve found an association between high SES and HIV infection (negative link between poverty and infection), eight found an association between low SES and HIV infection (positive link between poverty and infection) and one was mixed. A review by Gillespie *et al* (2007a) was no different. Hence, contextual and locational specificities are of paramount importance. Furthermore, the majority of earlier studies used a single measure of sexual behaviour of heads of households like condom use, number of sexual partners, age at first sex, etc. However, it is important to see whether the amalgamation of these and other measures are influenced by the socio-economic status of the household. This study, therefore, contributes to existing knowledge by developing a variable measuring the overall vulnerability of a household to HIV, while at the same time retaining the traditional proxies, thereby relating them to poverty status.

## OBJECTIVES

- To assess the extent of poverty and vulnerability to HIV/AIDS in Bahir Dar City; and
- To find out whether poverty contributes to the risk of HIV infection.

## HYPOTHESIS

We hypothesize that the urban poor are more HIV-vulnerable than the non-poor as poverty accelerates the probability of HIV infection and enforces them to engage in perilous sexual behaviour.

## RESEARCH METHODOLOGY

The study is based on household-specific primary data. Structured questionnaires were prepared in the local language, Amharic, and were filled out by well trained members of associations of PLWHA and socially and academically active undergraduate economics students. The questionnaire asked about, among other things, general household characteristics, socio-demographic and economic issues, and household reproductive health knowledge and sexual behaviour. The nature of the problem demanded the employment of a mix of stratified, purposive and simple random sampling techniques. According to the current administrative structure of the city, Bahir Dar has nine *kebeles*. (*Kebele* is the smallest administrative unit in Ethiopia.) We initially stratified them as residential, slum-residential, slum-business and mixed-slum based on our observation. Then, out of five mainly residential *kebeles* a random sample of two were selected and from two residential-slum *kebeles* one *kebele* was chosen randomly. One business-slum and one slum-mixed *kebeles* were also picked at random making the total number of sample *kebeles* five. Sample households in the sample *kebeles* were next selected randomly. The sample size allocated to each sample *kebele* ranges between 20 and 25 depending on its population size. A total of 120 households were interviewed and with a response rate of 97.5 percent, three household heads provided worthless information.

Both descriptive and econometric methods of analyses were then employed. In order to assess the extent of household poverty, their vulnerability to HIV/AIDS and the characteristics of sample households, we used various tools in descriptive statistics. The econometric analysis, which estimated three equations using logit, was applied to primarily find out if poverty has played any role in HIV/AIDS vulnerability.

The general econometric model of the study has the form:

$$Y = \alpha + \gamma(Poverty) + X\beta + \varepsilon$$

Where

$Y$  represents dependent variables, taking three different sexual behaviour-measuring variables: age at first sex, non-regular use of condoms, and general HIV vulnerability; all are used in their binary form;

$Poverty$  represents the poverty status (poor or non-poor) of a household, the variable of interest;

$X$  represents a vector of other household characteristics (control variables), including age, sex, educational background, marital status, migration dummy, media exposure, area of residence (slum or non-slum), etc;

$\alpha$  and  $\gamma$  are parameters, and  $\beta$  is a vector of parameters to be estimated; and  $\varepsilon$  is an error term.

Ultimately, three binary logistic regressions were run, one for each of the three dependent variables.

The first dependent variable 'Age at first sex' is a dummy constructed from the initially collected data on the age of the household head at sexual commencement by considering sexual commencement at 18 years or above as normal (less risky). The other dependent variable 'Non-regular condom use' is again generated as a dummy variable in favour of non-regular users. Those ever having sex reported the frequency of condom use with their partners as never, sometimes or always. If a household head is married and had no more than one sexual partner, despite they reported non-regular use of condom, the household is perceived as less risky and hence was given a value of 0. The third dependent variable 'Overall HIV vulnerability' is the major dependent variable, which is also a dummy, and constructed from the above three and other variables. Firstly, we generated an HIV vulnerability score from the following variables: non-regular use of condom while being not married; age at first sex was less than 18 years; had sex with more than one partner; common use of razor blades; and had sexual intercourse in the 12 months before the survey while being not married. For each of these variables where 'yes' responses were found, we added 1 to the score (indicating more risky behaviour), but subtracted 1 otherwise (indicating less risky behaviour). Next, a frequency distribution and a histogram with a normal curve were fit for the score. Almost half (49 percent) of the respondents had a score of -5, while the remaining had a score ranging between -3 and 1. This distribution information was finally used to categorize the vulnerability score into two groups: highly vulnerable (risky) (referring to those with score between 1 and -3) and less vulnerable (less risky) (referring to those with score of -5). This grouping produced a dummy variable, overall (HIV) vulnerability, taking 1 for the highly vulnerable (risky) households and 0 for the less vulnerable (less risky) ones.

The variable of interest, poverty status, is generated as follows. First, expenditure data on various major items were summed up to give household total monthly expenditure. This was next converted to the daily per capita basis. Considering the standard 1 USD-per-day line of poverty and the then average exchange rate of the dollar with the birr (1 USD=15 Ethiopian birr), we finally computed the poverty status as a binary variable giving 1 for the poor.

In line with our previous hypothesis, the coefficient estimate as well as the marginal effect of the poverty status variable on all of the three indicators of vulnerability to HIV/AIDS is expected to be positive. We, in other words, anticipate that being poor reduces the timing of sexual debut, makes people not to regularly use condoms and generally forces them to act in such a way that they will be highly prone to HIV infection.

## RESULTS AND DISCUSSION

### CHARACTERISTICS OF THE SAMPLE

The background characteristics of the survey respondents are shown in Table 1. More than half (56%) of the total 117 respondents are men. The age distribution of the respondents shows that over 60% of the sample is less than 50 years of which the adult population (30-49) constitutes the lion's share. As the data reveals, under the age of 30, the proportion of females is significantly higher than their male counterparts. As close as half of the respondents (48%) have 4-6 family members. Marriage is believed to have an instrumental role to skirmish the HIV/AIDS pandemic. Our data shows that the great majority (59%) of the

respondents are married. However, the proportion of households who are either widowed or divorced need not be undersized as they comprise as high as 30% of the responding households. This implies that approximately in one of three households living together is beaten by social and natural circumstances. The rate of divorce or widowhood significantly varies by gender. By and large, 59% of women but only 8% of men are more likely to miss their spouse by death or divorce. Such undesirable consequences may lead female-headed household of the City to engage in businesses which are risky to the infection of the deadly disease or they may be forced to have multiple sexual partnerships. This may be attributed to the fact that participation of women in the labour market or other income generating schemes (58.82%) is still lower relative to men. Thus, women remain economically dependent on males and the economic crises of family separation (especially due to death of husband or divorce) and its acceleration to HIV infection are likely to be higher.

Education is considered as the most powerful tool to capacitate and broaden society's cognitive and analytical skill for better and meaningful way of life generally and for battling against the HIV/AIDS epidemic specifically. Nonetheless, the educational attainment of the sample households is low as over half of them achieve below secondary education (illiterate and primary education). Only one in every five and one in every four households does have secondary and tertiary education respectively. The disadvantageous position of women is also exacerbated by their poor educational achievements. The proportion of female illiterates (43%) is much larger than that of males (15%) while almost similar distance exists in the reverse direction when compared with achievement above secondary education. Only less than 8% of women had access to further their formal education above secondary level compared to 39% of men. Because of the difficulty of estimating households' income directly, segregated expenditure data was collected and used to proxy income. The poverty incidence figure then computed is so high. More than three-quarters of the sample households consume below the one-dollar-per-day line. Evidently, larger segments of female-headed (over 80%) than male-headed (over 75%) households live in absolute poverty.

TABLE 1: SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Characteristics	Category	Percent		
		Male	Female	Total
Sex		56.41	43.59	
Age	15–29	6.06	27.45	15.38
	30–49	46.97	45.10	46.15
	50–65	28.79	23.53	26.50
	65+	18.18	3.92	11.97
Household Size	1–3	21.21	54.90	35.90
	4–6	56.06	37.25	47.86
	6+	22.73	7.84	16.24
Marital Status	Married	81.82	29.41	58.97
	Divorced	3.03	27.45	13.68
	Widowed	4.55	31.37	16.24
	Single	10.61	11.76	11.11
Educational Level	Illiterate	15.15	43.14	27.35
	Elementary	28.79	25.49	27.35
	Secondary	18.18	23.53	20.51
	> Secondary	37.88	7.84	24.79
Employment Status	Working	69.70	58.82	64.96
	Not Working	30.30	41.18	35.04
Poverty Status*	Non-poor	24.24	19.61	22.22
	Poor	75.76	80.39	77.78

\*Based on the 1 USD=15 birr line.

Source: Computed from Authors' Survey, August 2010

#### HOUSING CONDITION AND POSSESSION OF UTILITIES

Housing is a big social and economic challenge in many urban areas of Ethiopia. Although more than half of the respondents in Bahir Dar City have their own house at latter ages, as high as 44% of the respondents are still unlucky to enjoy the utility of house ownership. A noticeable proportion of the respondents are therefore forced to still reside in slum areas of the City. Given a mean family size of 4.47, one third of the households are living in a house with no bed room and a single room is a bed room for at least two people.

TABLE 2: CONDITIONS OF HOUSING AND OWNERSHIP OF OTHER UTILITIES

Housing		
Characteristics	Category	Percent
Have own house	Yes	56.41
	No	43.59
Location	Slum area	43.59
	Non-slum area	56.41
Number of rooms	1-2	31.82
	3	31.82
	Over 3	36.37
Utilities and other asset possessions		
Have electric service/line (own)	Yes	59.83
	No	40.17
Have pure water supply service/line	Yes	64.96
	No	35.04
Have private toilet	Yes	57.26
	No	42.74
Have Television	Yes	73.5
	No	26.5

Source: Computed based on Authors' Survey, August 2010

Data were collected on the availability and possessions of electricity, water service, toilet facility and durables such as television. The proportion of households with own electricity is 60% and the rest of the respondents do not have a contract with the power supplier and get electric service from indirect sources. Consumption of pure water from own source (65%) is slightly better than power supply though sizable proportion (35%) of the sample households are still dependent on other households. Availability of own toilet at household level is used to look at the sanitation facility of respondents. In this regard, 43% of the households do have shared toilet. Possession of these essential facilities by and large influences the privacy and quality of life of the residents. Three of the four households do have a television set and this accession could be the reason why many households generate public information through TV and radio. In general, considerable proportion of the sample households are deprived of the utility they could generate from the City. It is not thus difficult to see how rampant is the extent of poverty among the sample households of Bahir Dar City.

#### SEXUAL BEHAVIOUR, HIV/AIDS KNOWLEDGE AND POVERTY

All of the approached respondents do experience sexual intercourse. As shown in *Table 3*, about one third of them had sex before they celebrated their 18<sup>th</sup> birth day. Earlier sexual initiation is believed to be more risky in terms at least of HIV/AIDS infection. The proportion of the poor who initiate sex before 18 is almost twice of that of the non-poor. About 91% of the respondents are loyal to their sexual partner. Only 22% the respondents use condom consistently. But, the remaining either totally abandon it (67%) primarily because they are married or use it occasionally (11%). Differences seem to exist between the poor and the non-poor regarding use of condom. While more of the non-poor occasionally use it, more of the poor totally abandon it.

**TABLE 3: SEXUAL BEHAVIOUR AND HIV/AIDS KNOWLEDGE BY POVERTY STATUS**

Characteristics	Category	Percent		
		Non-poor	Poor	Total
Ever had a sexual partner	Yes	100.00	100.00	100.00
	No	0.00	0.00	0.00
Age at first sex	18 or above	80.77	64.84	68.38
	Below 18	19.23	35.16	31.62
Had sex in the past twelve months	Yes	73.08	70.33	70.94
	No	26.92	29.67	29.06
Had sex with more than one partner	Yes	11.54	8.79	9.40
	No	88.46	91.21	90.60
Condom Use	Never	63.16	68.25	67.07
	Sometimes	15.79	9.52	10.98
	Always	21.05	22.22	21.95
Don't use razor in common	Yes	84.62	92.31	90.60
	No	15.38	7.69	9.40
Don't eat with HIV positive people	Yes	0.00	7.69	5.98
	No	100.00	92.31	94.02

Source: Computed based on Authors' Survey, August 2010

To examine the knowledge of respondents about HIV/AIDS, some simple but imperative questions were raised; for instance, over 90% of the respondents abandoned sharing of razor blades. Households' awareness in this regard is promising and the poor have shown more progress than the non-poor. Culturally, Ethiopians enjoy eating food together. Nevertheless, after the incidence of the HIV/AIDS catastrophe, observable discrimination against HIV positive people has become widespread. But, as our finding reveals, most of the respondents (94%) reported that eating together with HIV victims has nothing to do with their HIV vulnerability. Thus, there is an essential improvement in the knowledge and behaviour of households. All of the non-poor, except very few poor, have enjoyed that improvement.

#### EFFECT OF POVERTY ON THE VULNERABILITY OF HIV INFECTION

The marginal effects of the estimations, after the three logit regressions of the basic parsimonious model, are reported in *Table 4*. Four of the seven explanatory variables included in the model are found to statistically determine the age at which sexual relations initiate. According to the estimates, those household heads that are currently unmarried had a higher probability of early sexual initiation compared to those that are married. It has widely been recognized that education has the importance of delaying early commencement of sexual activity. As can be observed from the negative sign attached to the marginal effect of educational level, the higher the educational achievement the lower will be the likelihood of early sexual start-up. Accordingly, each extra year of schooling reduces the probability of sexual initiation under the age of 18 years by 3 percent. Similar evidence was found in Kenya as school attendance reduced the likelihood of early initiation of sexual activity and occurrence of premarital intercourse among adolescents (Mensch et al, 2001). We also estimated that the marginal effect of age of the household head on the probability of early sexual commencement is negative. It is also found, other things kept constant, that the likelihood of earlier sexual initiation changes positively with larger family size. Against our expectation, however, the effect of poverty on vulnerability to HIV infection due to earlier sexual initiation is statistically insignificantly implying that the poor and the non-poor may not be dissimilar in being initiated for intercourse at an earlier age.

Only three explanatory variables - marital status, age and slum residence - significantly determine the probability of non-regular condom use. Poverty status, educational level, HIV knowledge and household size are found not to have any statistically noteworthy impact on condom use behaviour. Slum residence and being not married directly influence the likelihood of irregular use of condoms. Ceteris paribus, the negative sign of the age variable shows that younger people are slightly likely to be non-regular condom users. However, unmarried household heads are more probable in not using condoms regularly. Though the poor and the non-poor do not seem to be different in their use of condoms, people who reside in slum areas exhibit higher irregularity in their condom usage compared with those who reside in non-slum areas. Since slum residential arrangements do not afford privacy in sexual relationships, 'unplanned' intercourses without condoms may become common.

TABLE 4: EFFECT OF POVERTY ON VULNERABILITY TO HIV INFECTION MARGINAL EFFECTS AFTER LOGIT REGRESSION

Independent variable ↓	Dependent variable		
	Age at first sex	Non-regular condom use	Overall vulnerability
Poverty status	- 0.018	- 0.043	- 0.234*
(poor=1)	(0.1369)	(0.0786)	(0.1328)
Marital status	0.267**	0.223***	0.452***
(not married=1)	(0.1060)	(0.0846)	(0.0989)
Educational level	- 0.028***	0.003	- 0.010
	(0.0093)	(0.0048)	(0.0111)
Age	- 0.008*	- 0.006**	- 0.013**
	(0.0043)	(0.0026)	(0.0053)
HIV knowledge	- 0.155	- 0.022	- 0.308**
(high=1)	(0.1258)	(0.0683)	(0.1298)
Household size	0.056*	0.025	0.089**
	(0.0305)	(0.0156)	(0.0389)
Slum residence	- 0.017	0.197**	0.099
(slum=1)	(0.1037)	(0.0788)	(0.1256)
*, ** and *** show significance at 10%, 5% and 1% levels respectively. Standard errors in parentheses.			

The overall HIV vulnerability variable is more comprehensive than the above measures of risky sexual behaviour. Similar to the previous results, those that are either single, divorced or widowed show behaviours that put them at a higher risk of contracting the virus. Other important determinants of the probability of vulnerability to HIV are age of the head and HIV knowledge. Younger residents are once again more exposed than older ones. Not surprisingly, being knowledgeable about HIV safeguards vulnerability. These reveal that the youth are aware of HIV/AIDS but are susceptible implying the importance of investing on other things than mere awareness-creating activities. It has been estimated that the poor are less vulnerable than the non-poor as shown by a significant and negative marginal effect of the poverty status variable.

## CONCLUSIONS AND RECOMMENDATIONS

This study has analysed data of 117 randomly selected households and run logit regressions in an effort to measure the effect of poverty on vulnerability to HIV/AIDS infection in Bahir Dar City of North-western Ethiopia. It is found that the poverty situation in the sample areas is pervasive as captured by lower daily average consumption expenditure and possession/use of various utilities and durables. We find that the probabilities of irregularity in condom use and initiating sexual intercourse at an age level lower than 18 years do not significantly vary with poverty status. Other factors than being in poverty determine condom use and early initiation to intercourse. This does not however mean that socioeconomic status does not influence the risk of contracting HIV; it does so via a combination of these and other channels. We have used the overall vulnerability variable to capture that amalgamation. Our estimation results, in opposition to our hypothesis, show that the non-poor are generally more predisposed to the virus than the poor. These findings justify some steps to be taken:

- The City's poverty situation has to be tackled with the proper implementation of the national poverty reduction strategy and with local government and community participation.
- The local government should work hard to reduce slum areas, with strong collaboration with the residents and stakeholders.
- Special emphasis must be given to the urban youth and women.
- Participation of targeted populations in various undertakings like urban agriculture may bring a difference.
- Housing problems in the City need to be solved though devising alternative, user-targeted and pro-urban poor policies.
- The sexual behavior of households which make them vulnerable to the HIV pandemic need to be targeted in various ways.
- Audience-targeted reproductive health information and education is imperative especially to women who are younger or have an infant marriage to mitigate the risk of HIV infection.
- Besides to the health information and communication strategies, inception of adult education may be vital for the fruition and sustenance of HIV prevention and control mechanism.
- While education and knowledge continue to be crucial to curtail the risk of expansion, investing on other things than mere awareness creation activities is also vital; working with development partners in this regard may be called for.
- The youth must also be held busy in productive activities.

## ACKNOWLEDGEMENTS

We would like to appreciate the financial support to the study from the Research and Community Service Office at the College of Business and Economics at Bahir Dar University, Bahir Dar, Ethiopia. We also thank Yonatan Minuye who made important contributions at the beginning of the study.

## REFERENCES

1. Ainsworth, M. and Semali, I. (2002): Who is Most Likely to Die of AIDS? Socioeconomic Correlates of Adult Deaths in Kagera Region, Tanzania, Viewed on June 11, 2011, <http://europa.eu.int/comm/development/aids/limelette/lim06.htm>.
2. Baker, J. (2009), "Meeting the Challenges of Urban Poverty and Slums", The World Bank.
3. Barnett, T. and Whiteside, A. (2002), Poverty and HIV/AIDS: Impact, Coping and Mitigation Policy, Edited by G.A. Cornia, AIDS, Public Policy and Child Well-being, Chapter 11, UNICEF-IRC, Florence.
4. Bhargava, P.K. and Satihal, D.G. (2005), "Poverty Linked HIV/AIDS as Determinants of Mortality: Evidence from a Community Based Study in Karnataka, India," CICRED Seminar on Mortality as Both a Determinant and a Consequence of Poverty and Hunger, Thiruvananthapuram, India.
5. BoFED ((Amhara Region) Bureau of Finance and Economic Development). (2009), Development Indicators of Amhara Region 2008/09, Bahir Dar, Ethiopia.
6. Booysen, F.I.R. and Summerton, J. (2002), "Poverty, Risky Sexual Behavior, and Vulnerability to HIV Infection: Evidence from South Africa," Journal of Health, Population and Nutrition, Vol. 20, No. 4, pp. 285-288.
7. Brook, D., Morojele, N., Zhang, C. and Brook, J. (2006). South African adolescents: Pathways to Risky Sexual behavior. AIDS Education and Prevention, Vol. 18, No. 3, pp. 259-272.
8. FHAPCO ((Ethiopian) Federal HIV/AIDS Prevention and Control Office). (2008), Annual HIV/AIDS Monitoring And Evaluation Report, July 2007 – June 2008 (2000 EFY), Addis Ababa, Ethiopia.

9. Filmer, D. (2002), "Socio-economic Correlates of Sexual Behavior: A Summary of Results from an Analysis of DHS Data," Background Paper to Confronting AIDS.
10. Gillespie, S., Greener, R., Whiteside, A. and Whitworth, J. (2007), "Investigating the Empirical Evidence for Understanding Vulnerability and the Associations between Poverty, HIV Infection and AIDS Impact," AIDS, Vol. 21, No. suppl 7, pp. S1-S4.
11. Habte, D. (2008), "Assessment of the Distribution of At-risk Populations and HIV/AIDS Referral Services in Ethiopia: Baseline Assessment for Mobile HIV Counseling and Testing Program in Amhara Region", Bethesda, MD: Private Sector Program-Ethiopia, Abt Associates Inc.
12. Lopman, B., Lewis, J., Nyamukapa, C., Mushati, P., Chandiwana, S. and Gregson, S. (2007), "HIV Incidence and Poverty in Manicaland, Zimbabwe: Is HIV Becoming a Disease of the Poor?" AIDS, Vol. 21, No. suppl 7, pp. S57-S66.
13. Madise, N., Zulu, E. and Ciera, J. (2007), "Is Poverty a Driver for Risky Sexual Behaviour? Evidence from National Surveys of Adolescents in four African Countries," African Journal of Reproductive Health, Vol. 11, No. 3, pp. 83-98.
14. Mbirimtengerenji, N.Z. (2007), "Is HIV/AIDS Epidemic Outcome of Poverty in Sub-Saharan Africa?" Croat Med J, Vol. 48, pp. 605-617.
15. Mensch, B.S., Clark, W.H., Lloyd, C.B. and Erulkar, A.S. (2001), "Premarital Sex, schoolgirl Pregnancy and School Quality in Rural Kenya," Studies in Family Planning, Vol. 32, No. 4, pp. 285-301.
16. Nedi, T., Yerdaw, M. and Enquoselassie, F. (2002), "Assessment of Behavioral Risk Factors for HIV/AIDS in Selected Target Groups in and around Addis Ababa and Nazareth Cities, Ethiopia," African Journal of AIDS Research, Vol. 1, No. 2, pp. 97-101.
17. Rae, G.O. (2001), "Health and Urban Poverty," East African Medical Journal, No. December, pp. 621-623.
18. Ramirez-Valles, J., Zimmerman, M.A. and Newcomb, M.D. (1998), "Sexual Risk Behavior among Youth: Modeling the Influence of Prosocial Activities and Socioeconomic Factors," Journal of Health and Social Behavior, Vol. 39, No. 3, pp. 237-253.
19. Tladi, L.S. (2006), "Poverty and HIV/AIDS in South Africa: An Empirical Contribution," Journal of Social Aspects of HIV/AIDS, Vol. 3, No. 1, pp. 369-381.
20. UNAIDS (United Nations Programme on HIV/AIDS). (2010), UNAIDS Annual Report 2009.
21. UNFPA (United Nations Population Fund). (2007), State of World Population 2007: Unleashing the Potential of Urban Growth.
22. van Donk, M. (2002): "HIV/AIDS and Urban Poverty in South Africa", mimeo.
23. van Renterghem, H. and Jackson, H. (2009): "AIDS and the City: Intensifying the Response to HIV and AIDS in Urban Areas in sub-Saharan Africa, Paper presented at the Conference on A Street, a City, an Epidemic and the Hidden Power of Urban Networks, Durban, South Africa, 5 August.
24. Wojcicki, J.M. (2005), "Socioeconomic Status as a Risk Factor for HIV Infection in Women in East, Central and Southern Africa: a Systematic Review," Journal of Biosocial Science, Vol. 37, pp. 1-36.
25. Zulu, E., Dodoo, F. and Chika-Ezeh, A. (2002), "Sexual Risk-Taking in the Slums of Nairobi, Kenya, 1993-98," Population Studies, Vol. 56, No. 3, pp. 311-323.

# STRATEGIC RESPONSES TO CHANGES IN THE EXTERNAL ENVIRONMENT: A CASE OF EAST AFRICAN BREWERIES LIMITED

**PATRICIA GACHAMBI MWANGI**  
**ASST. LECTURER**  
**CHUKA UNIVERSITY**  
**CHUKA**

**MARTIN MUTWIRI MURIUKI**  
**PURCHASING MANAGER**  
**TOTAL KENYA LTD.**  
**NAIROBI**

**NEBAT GALO MUGENDA**  
**LECTURER**  
**CHUKA UNIVERSITY**  
**CHUKA**

## ABSTRACT

*Organisations exist and operate within the environment. The environment can be classified into the external environment consisting of factors beyond the firm's control and the internal environment consisting of factors within the firm's control. Since the external environment is uncontrollable, the firm has to match its operations to the external environment in order to survive and succeed. The environment is dynamic and so for organisations to be effective, they should respond appropriately to changes in their respective environments. Strategic responses are the actions that organisations take to align themselves to their environments. This study adopted a case study approach to establish whether strategic responses are relevant to already successful companies. East African Breweries Limited has been a market leader in the alcoholic beverages industry in Kenya and even when it was faced by fierce competition it managed to dominate the industry. The study used both primary data collected through interviews with members of the company's management and secondary data obtained from the company's in-house publications, websites and newspapers. Content analysis was performed on the data. The study established that the company responded to only those changes which greatly impacted on the company's activities. The company had applied various strategic responses to address these changes namely market development, product development and modification, vertical integration, information systems change, innovation, product differentiation, outsourcing, shared services centre and aggressive marketing campaigns. The study concluded that even for successful companies strategic responses were crucial in assuring continued success.*


## JEL CODE

M19.

## KEYWORDS

Environment, Strategies, Strategic responses.

## 1.1 INTRODUCTION

 Strategic responses are the decisions that are made by a firm in order to align the firm to environmental changes. According to Pearce and Robinson (1997) strategic responses are a set of decisions and actions that result into formulation and implementation of plans designed to achieve a firm's objectives. In achieving the firm's objectives, management is faced by a complex and changing environment which impacts heavily on the firm. To ensure continued survival, management has to come up with a game plan in response to environmental changes which is the firm's strategy. For organisations to be effective and hence successful, they should respond appropriately to changes that occur in their respective environment. Consequently they need strategies to focus on their customers and deal with the emerging environmental challenges.

Johnson and Scholes (1997) defined strategy as the direction and scope of an organisation over the long term which achieves advantage for the organisation through its configuration of resources within a changing environment to meet the needs of markets and to fulfil stakeholder expectations. This, they argued, involves matching of an organisation's activities to the environment in which it operates. In addition, they argued that strategy can also be seen as building on or stretching an organisation's resources and competences to create opportunities or capitalize on them. This idea does not just imply ensuring resources are available or can be availed to take advantage of new opportunities in the environment but it means identifying existing resources and competences which might be a basis for creating new opportunities in the market place.

Abbot (2007) argued that sometimes what is so much referred to as strategy is usually an operational plan involving some wishful thinking and a projection of existing status quo into the future and adjusting by a given percentage. He argued that hard analysis and ruthless questioning of fundamental assumptions is usually lacking in such plans. He went ahead to define strategy as the unique and distinctive actions a company takes to achieve a competitive advantage that will contribute to greater net profitability. He further suggested that strategy is all about creating a distinctive approach to a customer differentiated value proposition. He concurred that having a strategy is important and cited the case of Safaricom's entry in Kenya where it focused on the mass market as opposed to its competitors whose focus was on the high and middle income earners and made a record breaking pre-tax profit of 17.79 billion.

According to Byars (1991), strategic responses are different from operational responses. Operational responses are concerned with efficiency of operations. Strategic responses on the other hand affect several areas of operation, require top management decisions and large amounts of money, are future-oriented and affect long-term prosperity of the firm and most importantly are dependent on the environment. Therefore each firm adopts strategies that match its environment and that are supported by the firm's internal capability.

### 1.1.1 EAST AFRICAN BREWERIES LIMITED

East African Breweries Limited is a company cross-listed in the Nairobi Stock Exchange, the Uganda Stock Exchange and the Dar-es-salaam Stock Exchange (Mwangi, 2005). East African Breweries Limited has an annual turnover of Kshs 30 Billion and it has the largest share of the beer industry in the region. East African Breweries Limited is the holding company for Kenya Breweries Limited, Uganda Breweries Limited, United Distillers and Vintners, International Distillers Uganda, Central Glass Industries and East African Maltings Limited (Mogusu, 2007; Waithaka, 2007). Kenya Breweries Limited and Uganda Breweries Limited are

the beer brewing subsidiaries, United Distillers and Vintners and International Distillers Uganda are the spirits distilling subsidiaries, Central Glass Industries manufactures glass bottles and East African Maltings Limited produces barley.

East African Breweries Limited was started in 1914 and was first incorporated as a private company in 1922, trading under the name Kenya Breweries Limited. It was listed on the Nairobi Stock Exchange for the first time in 1954 (Mwangi, 2005). In 1972, the company completed the largest public share issue in Kenya's history raising the number of shareholders to more than 23,000. In 1990, the company held its first ever strategic planning session which laid the groundwork for a major restructuring of the company.

In the year 2002, East African Breweries Limited signed license agreements with South African Breweries International and agreed terms for share exchanges in Kenya Breweries Limited and Tanzania Breweries Limited. In the agreement South African Breweries International closed its brewing operation, Castle Breweries Kenya and retained its investment in Kenya by taking a 20% shareholding in Kenya Breweries Limited. On the other hand, East African Breweries Limited closed its Kibo Brewery in Tanzania and retained its investment in that country by acquiring a 20% shareholding in Tanzania Breweries Limited. Castle Breweries Kenya was East African Breweries Limited's biggest competitor for its brewing operations thus its closure left East African Breweries Limited as the only beer brewing operation in Kenya. The rest of the beer brands in the country were imported brands (Njuri, 2002; Munaita, 2004). Keroche Breweries, which is East African Breweries Limited's main competitor, was established in 1997 but it still commands a minority share of the market.

## 1.2 REVIEW OF LITERATURE

### 1.2.1 STRATEGIC RESPONSES

Strategic responses are the strategies adopted by organisations in response to changes in the environmental conditions. Faced with the increasingly complex environment, a firm needs to develop strategic responses (Johnson, Scholes and Whittington, 2005). Ansoff and McDonnell (1990) defined strategy basically as a set of decision-making rules for guidance of organisational behaviour. They further added that there are four distinct types of such rules. The first is yardsticks by which present and future performance of the firm is measured. The quality of yardsticks they say are called objectives and the desired quantity are goals. The second type is rules for developing the firm's relationship with its external environment which are called product-market or business strategy. The third type is rules for establishing internal relations and processes within the organisation which are referred to as the organisational concept. Lastly, are the rules by which the firm conducts its day-to-day business which are called the operating policies.

Aosa (1992) argued that strategy is creating a fit between the external characteristics and the internal conditions of an organisation to solve a strategic problem which is a mismatch between internal characteristics of an organisation and its external environment. The match is achieved by developing an organisation's core capabilities related to the external environment well enough to allow for exploitation of opportunities in the external environment and minimization of threats. Abbot (2007) defined strategy as the unique and distinctive actions a company takes to achieve a competitive advantage that will contribute to greater net profitability. Strategy he said is all about creating a distinctive approach to a customer differentiated value proposition.

Mintzberg, Quinn and Ghoshal (1998) viewed strategy from five interrelated definitions which are in terms of strategy as a plan, ploy, pattern, position and perspective. Strategy as a plan specifies a deliberate, consciously intended course of action that is designed in advance of the actions it governs. Strategy as a ploy is a specific manoeuvre intended to outwit competitors. As a pattern, strategy emerges from a stream of actions, visualized only after the events it governs and is developed in the absence of intentions and without preconception. This they termed as emergent strategy. As a position, strategy is a means of locating an organisation in the environment and indicates how the organisation will develop a sustainable competitive advantage. As a perspective, strategy gives an organisation an identity and reveals the way an organisation perceives the outside world. They argued that no one definition should be preferred to the others. In some senses they can be considered as alternatives or complementary approaches to strategy.

### 1.2.2 EXTERNAL ENVIRONMENT

Pearce and Robinson (1991) defined the external environment as that part of the environment which consists of all the conditions and forces that affect a firm's strategic options but are typically beyond the firm's control. They argued that the strategic management model shows the external environment to consist of two interactive and interrelated segments which are the operating environment and the remote environment. The operating environment, also referred to as the competitive or task environment, consists of forces and conditions within a specific industry and a specific competitive operating situation which is external to a firm and influence the selection and attainment of alternative objectives or strategies. Changes in this environment are shaped by strategic actions taken by a firm or its competitors, consumers, users, suppliers and creditors. The operating environment is subject to much more influence or control by the firm thus calls for proactivity on the part of the firm.

The remote environment consists of forces and conditions that originate beyond and are irrespective of any single firm's operating environment. It provides the general economic, political, social and technological framework within which competing firms operate in. Economic considerations give the nature and direction of the economy and a firm must understand these considerations both on a national and international scale. They influence the general availability of credit, level of disposable income and propensity of people to spend. Social considerations include the beliefs, values, habits, attitudes, opinions and lifestyles derived from the cultural, demographic, religious, education and ethnic conditioning. These influence demand and consumption patterns. Political considerations define the legal and governing parameters which the firm must operate by. Technological considerations must be monitored to ensure a firm is not rendered obsolete and also to promote innovation. The firm basically exists within the physical or ecological environment and derives most of its inputs from it.

### 1.2.3 COMPETITIVE ENVIRONMENT

Porter (1980) on the other hand argued that although the relevant environment is very broad encompassing of social as well as economic forces, the key aspect of the firm's environment is the industry it competes in. He advanced five forces that according to him define the state of competition in an industry. New entrants in an industry bring in new capacity, a desire to gain market share and in some cases substantial resources. Rivalry among firms involves jockeying for positions in the industry through activities like price wars, advertising campaigns, product innovations and customer service. Threat from substitute products comes because substitutes limit the potential returns in an industry. Buyers compete with an industry by forcing down prices, bargaining for better products or playing competitors against each other at the expense of industry profitability. Suppliers exert a threat to an industry by threatening to raise prices or reduce quality of purchased inputs thereby squeezing profits from an industry. In order to succeed in the industry, the firm has to formulate competitive strategies to relate to these forces.

### 1.2.4 INTERNAL ENVIRONMENT

The internal environment can also be referred to as internal capability. It comprises of those factors that are within the firm and can be controlled by the firm. It includes factors like financial resources, technology, human resources, structures and processes. Pearce and Robinson (1991) suggested that these are factors that give the organisation its strengths and weaknesses. The internal strengths and weaknesses they argued help in narrowing the choice of alternatives and selecting strategies to deal with the external environment. Johnson and Scholes (1997) approached the internal environment from what they termed as strategic capability. They defined strategic capability as consisting of three factors namely; resources available to the firm, competence with which the firm's activities are undertaken and balance of resources, activities and business units. They concluded that there was no best or worst set of resources and competences. They can only be assessed in relation to the strategy which the organisation is pursuing.

Thompson, Strickland and Gamble (2007) argued that in devising and executing a strategy, managers must start with assessing what the organisation must do differently to carry out the strategy successfully. That means the firm must make internal changes. They argued that the managerial component in strategy execution involves building the organisation with competencies, capabilities and resources, strength to execute strategy successfully, marshalling sufficient money and people to execute strategy, instituting policies and procedures that facilitate strategy, adopting best practices and pushing for continuous improvement on value chain activities, installing information and operating systems that enable personnel to carry out their strategic roles proficiently, tying rewards to achievement of strategic targets and installing a corporate culture that promotes good strategy execution.

**1.2.5 THE STRATEGIC SUCCESS HYPOTHESIS**

Ansoff and McDonnell (1990) explained the changes in the environment in terms of what they referred to as turbulence. According to them environmental turbulence is a combined measure of the changeability and predictability of a firm's environment. In advancing the strategic success hypothesis, they introduced what they termed as a firm's strategic aggressiveness. This they described by the degree of continuity from the past of the firm's new products, competitive environments and marketing strategies and timeliness in introducing the new products appearing on the market. From this they advanced the strategic success hypothesis which prescribes that for a firm to succeed its strategies must match the environment and further that its internal capability must match the strategies. Pearce and Robinson (1991) argued that for strategy to succeed three ingredients must be in place. First the strategy must be consistent with the competitive environment conditions. Secondly, the strategy must place a realistic demand on the firm's internal resources and capabilities. Lastly, strategy must be carefully executed.

Challenges faced by different industries are different. As a result it is no longer possible to devise a single prescription for response to challenges which would apply to all industries and firms (Ansoff and McDonnell, 1990). This therefore means that each organisation develops strategies that match its own conditions. What works for one organisation may not work for another. Each organisation must find what works for it in order to succeed. According to Ferrell, Hartline and Lucas (2002), each organisation must carry out a situational analysis which must always include analysis of the internal and external environments to determine the responses to adopt in order to survive and succeed in the environment.

**1.3 STATEMENT OF THE PROBLEM**

The rationale behind relating strategies to the environment is that strategy is intended to achieve competitive advantage for the organisation. Most authors concur that strategy is important to achieve competitive advantage however they do not suggest what happens after competitive advantage is achieved. Are strategic responses relevant after achieving competitive advantage? Do successful organisations need to respond to the environment? This study sought to answer this question through an in-depth study of one of the most successful companies in Kenya.

**1.4 RESEARCH OBJECTIVES**

The study aimed at establishing whether strategic responses were deemed necessary for East African Breweries Limited since the company was already successful and had achieved competitive advantage. The study therefore aimed at addressing the following specific objectives:

- To determine changes in the external environment that affect East African Breweries Limited
- To determine whether East African Breweries Limited responded to the changes in the external environment
- To determine the strategic responses by East African Breweries Limited to these external environmental changes

**1.5 RESEARCH METHODOLOGY**

This was a case study of East African Breweries Limited. A case study embraces depth rather than breadth of a study. The study therefore involved an in-depth exploration of the strategic responses by East African Breweries Limited to changes in the environment. The study made use of both primary and secondary data. Secondary data was obtained from the company's records such as published financial statements, in-house magazines and publications. Data was also obtained from newspapers, trade journals, magazines, websites and internal communication media like the notice boards and posters. Primary data was collected through interviews. Content analysis was then performed on the data to allow for an in-depth understanding of issues in the case.

**1.6 RESULTS AND DISCUSSIONS****1.6.1 STRATEGY FORMULATION**

The study established that East African Breweries Limited had periodic strategic plans and the company was targeting to be the number one drinks company in Eastern Africa. Every year the senior executives would hold a strategy seminar whereby they would break down the long-term plans into annual plans. The annual targets would then be cascaded down such that each business area would have its annual targets. The annual targets would be cascaded down from the senior business executives to each individual such that each individual would be aware at the beginning of the financial year what they would be expected to contribute for the company to achieve its goals. At the business and departmental level the goals would be captured by a mission statement and at the individual level the goals would be captured by performance commitments known as 'Partners for Growth'. These performance commitments would form the basis of performance evaluation at the end of the year which would determine the salary increments and bonus payments to members of staff.

**1.6.2 ENVIRONMENT**

In determining the strategic plans, the senior executives would carry out a review of environmental conditions and potential changes in these conditions. From this analysis, they would determine the likely threats and opportunities posed to the company. Based on the expected threats and opportunities, they would determine the strategies to undertake in the course of the year in response to these changes. The study established that although there had been many changes in the external environment variables, the following changes had impacted the company to a large extent leading to the company drafting strategic responses to address the changes. In the political-legal framework, the company had faced greatest challenges from taxation. Due to the classification of the company's products as potentially harmful products, the government had continued to increase the excise duties levied on the products leading to increase in cost of production. However, with the proliferation of illicit brews and many cases of deaths and other tragedies on consumption of the brews, the government had removed the duties on the beer brands targeted to low income groups.

In the technological environment, East African Breweries Limited had been operating with many disjointed information systems which were becoming obsolete. In addition, most companies had moved from use of glass bottles to cheaper plastic bottles. Therefore, glass manufacturers had challenges on where to sell their products and had been forced to move to other product lines. The company was faced with challenges on procuring glass bottles for packaging. In the economic environment, the company had been affected by the low-income levels, business cycles, cost of factors of production and liberalization.

The socio-cultural environment variables like gender, changing lifestyles, safety concerns especially in consumption of illicit brews, drunken driving accident rates leading to the introduction of the Alco-blow and underage drinking had impacted on East African Breweries Limited's strategies to a large extent. The company had faced the strongest opposition from the National Agency for the Campaign against Drug Abuse especially with the rise of underage consumption of alcohol. Physical environment changes especially weather patterns, poor infrastructure, disease attacks especially the yellow dwarf disease and pest attacks mainly impacted East African Maltings Limited subsidiary. The competitive pressures faced by the company were mainly from beer exports and other companies mainly Kenya Wine Agencies Limited, London Distillers and Keroche Breweries.

**1.6.3 STRATEGIC RESPONSES**

The company had put in place various strategies to deal with the above environmental changes. The first strategy was market development. The company had effected this strategy by exporting its brands to other countries. It had penetrated the new markets especially using its flagship brand, Tusker. The company had entered countries like Djibouti, Sudan, Rwanda, Australia, Japan, USA, Canada and United Kingdom in response to the opportunities created by globalization, liberalization and stabilizing political conditions especially in Sudan and Rwanda.

The company had rolled out a new information system across its business. The system referred to as Systems Applications and Products in data processing had been implemented to cover the business processes on an end-to-end basis that is from production to financial reporting. The implementation had cost the company Kshs. 1 billion and was expected to deliver simpler, faster and better operations for the company. The system had been in response to the need for a streamlined system, enhanced accountability, robust internal controls and provision of real time data for decision making triggered by availability of new technology. The company had also put in place new technologies for production among its subsidiaries. In Kenya Breweries Limited, the company had put in place a new keg line to boost production of Senator Keg. In United Distillers and Vintners, the company had put up a new spirits line to boost production of the

spirits. In Uganda Breweries Limited, the company had invested in new dual-purpose vessels to be used in fermentation and storage of beer in a bid to boost its capacity in order to meet consumer demand. In Central Glass Industries, the company had put up a new furnace and in East African Maltings Limited, a new malt house had been constructed. These were to replace obsolete equipment in the production of glass and malting of barley.

East African Breweries Limited's core business was beer brewing and spirits distillation and selling. However, faced with the rise in cost of raw materials and need for reliability on the part of the suppliers of such raw materials, the company employed the backward vertical integration strategy. This strategy involves acquisition of businesses that supply the organisation with inputs. East African Maltings Limited would provide the brewing subsidiaries with malt and barley for beer brewing. To achieve this, East African Maltings Limited would contract farmers and provide them with raw materials for growing barley, which the subsidiary would process into malt for production of beer. Central Glass Industries on the other hand would produce glass bottles for the company used in packaging beers and spirits.

East African Breweries Limited had applied the innovation strategy by coming up with new products to meet changing consumer needs. Senator keg had been launched on a joint initiative with the Kenyan Government to curb the consumption of illicit liquors. Senator keg was a cheaper beer targeted at the low income earning population due to the low taxes on the product. VAT 69 had also been introduced in the market to meet the needs of spirit consumers who felt that Bond 7 was an old spirit that did not appeal to their image. In addition, the company had introduced V&A, a cream based liqueur meant to appeal to ladies. To meet the demands of the health conscious consumers, East African Breweries Limited had launched White Cap Light and Malta Guinness. White Cap Light being a reduced calories beer for those consumers who are concerned about their calories intake and Malta Guinness being a non-alcoholic malt-based energy drink for both alcohol and non-alcohol consumers. To address the physical environment changes, East African Maltings Limited developed a more drought resistant, pest resistant and higher quality barley variety named Nguzo following 11 years of research. Prior to this, only two barley varieties were in production that is Sabini and Karne.

East African Breweries Limited applied differentiation strategy by matching consumer motivations with the brand image. Brand image involved the social perceptions like masculine, feminine, older, young, personalities like fun loving and product features. Tusker was associated with patriotism in Kenya while Bell and Uganda Waragi were associated with patriotism in Uganda. Tusker Malt lager and Johnnie Walker spirits were associated with people who seek status and prestige. Smirnoff ice and Baileys were associated with ladies. White Cap was mostly perceived as a beer for the older generation while Guinness was for starters. The company also differentiated its products by outlets and matched its advertising and promotions by the outlets. Outlets were ranked by the income levels of the patrons and locations. The five star restaurants and pubs would only stock high-end beers and spirits associated with status like Tusker Malt Lager, Baileys, Johnnie Walker, Smirnoff and Tusker. On the other hand local estate pubs would not have the status brands and instead they would stock the lower end brands and the affiliation brands like Tusker, Pilsner and Senator. In the very low-income areas like the slums, the only brands available would be Senator Keg. The high end pubs would not run promotions and would not even have posters advertising while in the low end pubs the promotions would form a key activity.

East African Breweries Limited had applied product development and modification strategy to its products to appeal to a wider range of consumers. The company had introduced Smirnoff Black, which targeted men who would normally take Smirnoff ice but considered it a ladies' drink and so avoided it. In addition the company modified the labelling of Uganda Waragi in a bid to give it a fresh and modern look and White Cap Light had been developed to appeal to younger consumers. Guinness packaging was also modified from the 500ml bottle to the 300ml bottle. The company had also incorporated the use of cheaper and more readily available sorghum instead of barley in beer production. In barley production, East African Maltings Limited had expanded to Uganda to find new farming areas. Previously barley growing was concentrated in Kenya. The company also targeted to take advantage of the favourable physical conditions in the region as well as the lower excise duties on locally produced goods provided by the Ugandan Government. In addition, the subsidiary had entered into agreements with Aon Minet Insurance Brokers to insure farmers' barley produce. This was in response to the problem of crop loss that farmers faced occasioned by changes in climatic conditions. Glass is normally in three different colours that is amber, green or flint (clear). Central Glass Industries had succeeded to develop its processes such that it could produce the three types of glass using the same furnace. This had set it apart since it was the only glass manufacturer in the region that produced the three colours of glass containers. In addition, due to the threat posed by plastic bottles, it had also modified its glasses to lighter and more cost effective glasses.

East African Breweries Limited had outsourced most of its non-core activities as part of its strategy. The company had outsourced services like casual and temporary human resource management, payroll processing, fleet management, product distribution, clearing, information technology hardware management, security, cleaning and catering. The need to outsource arose from the need to reduce cost in order to remain profitable occasioned by low economic growth and also to improve efficiency. In addition outsourcing would also help to meet changing consumer needs since the non-core activities which would take up a lot of management time would be removed from them allowing them time to concentrate on consumer needs.

The company had also established a shared services centre. This concept involved setting up a hub, which would perform given functions for the whole company. The shared services centre would perform all the financial accounting and reporting activities for the East African Breweries Limited group of companies. In addition, the procurement function and information systems services were performed from central locations. This concept reduced costs attributed with duplication of services among subsidiaries. This helped the company address the problems associated with low economic growth and thus the need to reduce costs of operation. It also helped to increase efficiency and synergies for the company.

The company had continued to invest in aggressive marketing campaigns. Despite, Keroche Breweries being a weaker competitor in beer brewing in Kenya, the company faced competition from some imported brands like Heineken, Stella Artois, Sierra and Windhoek. In addition there were competitors in the spirits line like London Distillers and Kenya Wine Agencies Limited. There was also the threat of new entrants because the Kenyan economy was still liberalized and unless East African Breweries Limited ensured that its brands were at the top of consumers' minds new entrants would always pose a major threat. East African Breweries Limited would also run marketing campaigns according to business cycles because seasons like Christmas and Easter would fetch high sales volumes. East African Breweries Limited had therefore continued to run advertisements and promotions that always remind consumers of their presence.

## 1.7 RECOMMENDATION

East African Breweries Limited had been very successful in its strategic responses and had managed to dominate the spirits and beer industry. However, East African Breweries Limited's vision was to be the number one drinks company in Eastern Africa. The company seemed to focus mainly on the alcoholic drinks but in order to achieve its vision it needed to increase its attention on the non-alcoholic drinks. The only non-alcoholic drinks that were produced by the company were Malta Guinness and Alvaro. The company therefore needed to engage its resources to understand the non-alcoholic drinks industry and devise strategies to compete effectively in that industry as well if it was to achieve its vision.

## 1.8 CONCLUSION

East African Breweries Limited had employed a great mix of strategic responses in various facets of the business in order to cope with environmental changes. Though not clearly distinct, the strategic responses adopted by East African Breweries Limited seemed to be in line with the Pearce and Robinson's (1991) grand strategies namely concentration, market development, product development, innovation, integration, joint venture, diversification, turnaround, divestiture and liquidation. In addition the company had adopted other recent strategies like outsourcing and shared services centres. East African Breweries Limited had been one of the most successful companies and in Kenya it dominated the beer and spirits industry. The company had managed to get ahead of its competitors. However, the company still found it necessary to engage in strategic planning. The company still monitored changes in the environment and put in strategic responses to address the changes. This answered one of the key questions posed by the study, which was whether strategy was important for a company that had managed to beat the competition. From the findings of the study therefore, strategy was still important for a company that had managed to beat its competitors and dominate the market. This was because environmental changes could still drive the company out of the market and force it to wind up. Therefore environmental monitoring and strategic responses to environmental changes were very important for a company to survive and remain profitable in the environment.

**1.9 REFERENCES**

1. Abbot, D.J. (2007, July 17). "This Thing Called Strategy." Daily Nation, pp.17.
2. Ansoff, I. and McDonnell, E. (1990). "Implanting Strategic Management." Prentice-Hall, Englewood Cliffs, NJ.
3. Aosa, E. (1992). "An Empirical Investigation of Aspects of Strategy Formulation and Implementation within Large Private Manufacturing Companies in Kenya." PHD Thesis, University of Strathclyde, Scotland.
4. Byars, L.L. (1991). "Strategic Management: Formulation and Implementation." Harper Collins Publishers.
5. Ferrell, O.C., Hartline, M.D. and Lucas, G.H. (2002). "Marketing Strategy." Vikas Publishing House, New Delhi.
6. Johnson, G. and Scholes, K. (1997). "Exploring Corporate Strategy." Prentice-Hall, Europe
7. Johnson, G., Scholes, K. and Whittington, R. (2005). "Exploring Corporate Strategy: Texts and Cases." Pearson Education Limited, England.
8. Mintzberg, H. (1979). "Crafting Strategy." Edited by Porter, M.E. and Montgomery, C.A. Strategy: Seeking and Securing Competitive Advantage. Harvard Business School Publishing, Boston.
9. Mintzberg, H., Quinn, J.B. and Ghoshal, S. (1998). "The Strategy Process." Prentice Hall, London.
10. Mogusu, T. (2007). "Increased Sales Earn East African Breweries Limited Sh.10B Profits." Viewed on 10/11/2007 <http://www.eastandard.net>
11. Munaita, P. (2004, November 22-28). "Without Putting More Beer into Bellies, What are East African Breweries Limited's Options?" The East African, pp.2.
12. Mwangi, P. (2005). "East African Breweries Leads The Pack." Viewed on 20/11/2007 <http://www.businessinafrica.net>
13. Njuri, B. (2002). "South African Investors Cry Foul." Viewed on 09/12/2007 <http://goliath.ecnext.com>
14. Pearce J.A. and Robinson, R.B. (1997). "Strategic Management: Formulation, Implementation and Control." The McGraw-Hill Companies Inc., USA.
15. Pearce, J.A. and Robinson, R.B. (1991). "Strategic Management: Strategy Formulation and Implementation." Richard D. Irwin Inc, Illinois.
16. Porter, M.E. (1980). "Competitive Strategy: Techniques for Analyzing Industries and Competitors." The Free Press, New York.
17. Thompson, J., Strickland, A. and Gamble, J.E. (2007). "Crafting and Executing Strategy: Texts and Readings." The McGraw-Hill Companies Inc., New York
18. Waithaka, W. (2007, July 23). "East African Breweries Limited Relaunches Struggling Castle Lager Brand." Business Daily, pp.21.

## DEMOGRAPHIC VARIABLES AND THE LEVEL OF OCCUPATIONAL STRESS AMONG THE TEACHERS OF GOVERNMENT HIGHER SECONDARY SCHOOLS IN MADURAI DISTRICT

**DR. S.S.JEYARAJ**

**LECTURER**

**DEPARTMENT OF ACCOUNTING & COMMERCE  
INTERNATIONAL UNIVERSAL JUNIOR COLLEGE  
JAKARTA**


### ABSTRACT

*The aim of the study is to determine the Occupational stress of higher secondary teachers living in different socio-cultural and economic situations in government schools in Madurai district. The scale used in the study has been developed by researchers to investigate the demographic differences of higher secondary teachers in relation to Age, Gender, Salary, Year of Experience, Marital Status, Subject handling and the influence of these demographic variables on their occupational stress. For conducting the study 305 teachers (120 Government and 185 Aided school Teachers) were collected out of 1015 teachers employing simple random sampling from three segments by using lottery method. For the present study researcher analysed 120 Government Higher Secondary Teachers and impact of demographic variables in their teaching profession. At the end of the study it was seen that 63.30% of the Government Higher Secondary Teachers opined the stress level is medium. Gender indicates that occupational stress exists for both male and female teachers at all levels of experience and subject handling in different majors like arts and science and social studies experience in occupation among government teachers. Policy makers are advised to analyse the teacher that demographic characteristics may have an effect on teacher occupational stress. So, there is a need to provide proper favorable environment and support to teachers to maintain individual occupational stress at their workplace.*

### KEYWORDS

Demographic Variables, Educational Qualification, Gender, Higher Secondary Teachers, Work Pressure.

### INTRODUCTION

 Stress is a common problem that affects almost all of us at some point in our lives. Lifestyle in the 21<sup>st</sup> century is very stressful. Stress nowadays is not only overwhelming but it can pose a serious effect on one's health. Almost everyone knows how it feels like to be stressed stomachaches, headaches, and sweaty palms are all symptoms of this condition. These are normal body reactions to threats, changes in routines, or challenges. Ongoing stress may increase the changes that certain ailments may develop. Chronic or prolonged stress caused by work, relationship problems, or financial concern may hamper emotional balance and increase the risk of chronic illness. In addition, chronic stress may weaken the immune system and make it more susceptible to many forms of infections. Stress however, is an inevitable part of life and may cause one to be physically and emotionally drained. Stress is the debilitating effects caused by constant pressure both at work and home, are a modern phenomenon.

### DEFINITION

The word 'stress' was first introduced into the fields of biology and medicine in 1926 by an Australian endocrinologist, Hans Selye, working in montreal in Canada. He first introduced the concept of stress in 1939. It derived from Latin word to mean 'Hardship' 'Strait', 'Adversity' or 'Affliction'. The word stress was popularly used in the seventeenth century. His concept of stress at that time was a physiological one and throughout his life the psychological component of the phenomenon of stress was not so much ignored by him, as placed in a secondary, and to some degree, less important place in the total picture of human stress. Selye in his most recent definition states that stress is the "non-specific response of the body to any demand". While stress is readily acknowledged to be a common feature of modern life, defining stress, its causes, symptoms and effects is a very complex matter. It is often characterised as a primitive stone-age reaction to modern organisational and social factors known as stressors.

### OCCUPATIONAL STRESS

Occupational stress refers to an individual's reaction to a disturbing factor in the environment. It is defined as an adaptive response to an external situation that results in physical, psychological, and/or behavioural deviations for organisational participants. Occupational stress can manifest itself in both positive and negative ways. Occupational stress is said to be positive when the situation offers an opportunity for one to gain something. Eustress is the term used to describe positive stress. Eustress is often viewed as a motivator since, in its absence, the individual lacks that 'edge' necessary for peak performance. It is negative when stress is associated with heart disease, alcoholism, drug abuse, marital breakdowns, absenteeism, child abuse, and a host of other social, physical, organisational and emotional problems.

"Occupational stress can be defined as the harmful physical and emotional response that occurs when the requirements of the occupation do not match the capabilities, resources, or needs of the worker. Occupational stress can lead to poor health and even injury".<sup>1</sup>

According to the article titled 'Guidance on Work Related Stress: Spice of life- or kiss of death' "stress is the reaction people have to excessive pressures or other types of demand placed on them".<sup>2</sup>

There is a lack of generally accepted definition of what is meant by occupational stress. Hans Selye the father of stress management himself wrote that, stress suffers from the mixed blessing of being too well known and too little understood. However, the term has commonly been defined in one of the three ways: (a) as an environmental stimulus, (b) as an individual's psychological or physiological response to such an environmental force, or (c) as the interaction between the two.

Selye (1956),<sup>3</sup> "any external event or internal drive which threatens to upset the organic equilibrium" is stress. He has defined stress as the non-specific response of the body to any demand made upon it.

Lazarus (1960)<sup>4</sup> maintains that "stress occurs when there are demands on the person which tax or exceed his adjustments resources".

Pinneau (1975)<sup>5</sup>, stress refers to "any characteristic of the job environment which is a threat to the individual. According to Kyriacou (1987), defines "teacher stress as the experience by a teacher of unpleasant emotions such as tension, frustration, anger and depression resulting from aspects of his work as a teacher." Occupational stress is generally seen to have two major components. Stressors and stress responses are internal or external stimulus events which cause some sort of response. Internal stressors include thoughts and feelings, external stressors include such things as noise, cold and interactions with other people. Stress response is a complex reaction to a stressor. It usually has physiological cognitive and/or behavioural components.

Occupational stress can result either from work and origin related or individual personality related factors. Occupational stress has been defined in terms, of misfit between a person's skills and abilities, and the demand of his/her job or misfit between person's needs not being fulfilled by his/her job environment. Cooper and Marshall (1976)<sup>6</sup> are of the view that organisational stress basically means environmental factors or stressors such as work load, role conflict, role ambiguity and poor working conditions associated with a particular job. Regardless of how one's job may compare to another in terms of stress, it is helpful to recognise that every job has potential. Cooper and Marshall (1988)<sup>7</sup> have identified sources of occupational stress at work. It may be mentioned here that although common to all jobs, the sources vary in degree to which they are found to be casually linked to stress in each job.

**REVIEW OF LITERATURE**

Jha, S.S. (1988)<sup>8</sup> in his study on "Jobs Stress and Employee Strain in India Executives" explains the pattern of stress and strain in three work groups namely production, personnel and data processing divisions in an organization. Results indicated that job future ambiguity had negative effect on job satisfaction in all the three groups. The pattern of stress in the three groups was different among different levels of management. Among different levels of managers, the middle level managers had more role ambiguity than others did.

Reddy, V.S. and Ramamurthi, P.V. (1991)<sup>9</sup> in their study on "The Relation between Stress Experience on the Job-Age, Personality and General ability" analysed the influence of age, personality and general ability of the individual in the perception of stress. It was found that only age influenced the perception of stress. There was only very limited contribution of personality and general ability of the individual to the intensity of stress experience of the individual.

Rajeswari, T.R. (1992)<sup>10</sup> in her study on "Employee Stress: A Study with Reference to Bank Employees" found significant negative relationship between age and stress and also between experience and stress. This study also found negative correlation between number of members in the family and stress. The level of stress did not differ between different levels of workers namely officers, and clerks.

Anitha Devi (2006-7)<sup>11</sup> in her study on occupational stress: A comparative Study of Worker in different Occupations" describes identifying the degree of life stress and role stress (LS & RS) experienced by professional women. It also studies the effect of life stress and role stress on various demographic variables like age, experience and income. For the purpose of study, 180 women professionals (six different occupations) were chosen. It was found that science and technology professionals and doctors experienced significantly greater life stress and role stress.

Dhanalakshmi (2008)<sup>12</sup> in her study on "Actors Predicting Stress of Employees in a Public Transport Corporation" measures the level of stress of the transport corporation employees and also studies the factors that could predict stress. It is found that the employees experience moderate level of stress. Further, stress is predicted by working environment and safety and security.

Kyriacou, Kunc, Stephens & Hultgren, (2003)<sup>13</sup> Existing studies on the job satisfaction and occupational stress of teachers focus on teacher background characteristics (age, gender, years of service, etc.) as well as workplace conditions (organisational culture, pupil behaviour, work-load, etc.). Higher levels of dissatisfaction with work and occupational stress have been associated with teacher performance; absenteeism and leaving the job.

Leimann, Murdoch, & Waller, (2008)<sup>14</sup>. Several studies suggest that salary concerns are one of many issues that contribute to work related stress in teaching. The National Commission on Teaching and America's Future suggested that a key reason that teachers leave the field of education is low pay.

Barmby (2006)<sup>15</sup> conducted a study examining the issue of recruitment and retention of English, math and science teachers. These subjects are considered high priority and often face teacher shortages. Two Hundred forty six teachers, who taught these subjects in England and Wales were surveyed to examine the reasons for choosing to enter, not enter or leave the teaching profession. All of the teachers surveyed had two years or less of teaching experience. Salary concerns, along with excessive workload and student behavior were the most common factors respondents cited for dissuading them from entering teaching.

Sargent, T. and Hannum, E. (2005)<sup>16</sup> in their study on "keeping Teachers Happy job Satisfaction among Primary School Teachers in Rural North-west China" comparative study highlight an in-depth research on teacher job satisfaction in rural north-west China, in terms of community factors, school environment factors, and teacher characteristics. Their findings were mostly in alignment with previous studies, but contrary to their assumptions, however, teachers with greater workloads, felt more satisfied. Further more economic development was negatively connected with teacher's satisfaction.

Reddy, V.S. and Ramamurthi, P.V. (1991)<sup>17</sup> in their study on "The Relation between Stress Experience on the Job-Age, Personality and General ability" analysed the influence of age, personality and general ability of the individual in the perception of stress. It was found that only age influenced the perception of stress. There was only very limited contribution of personality and general ability of the individual to the intensity of stress experience of the individual.

Singh, A.K. and Sehgal, V. (1995)<sup>18</sup> in their study on "Men and Women in Transition: Patterns of Stress, Strain and Social Relations" Highlight the patterns of stress and strain among men and women as well as single and dual career couples. They found that male and female managers did not differ significantly on various stress dimensions. Difference in gender was however found in strains. Women were characterized by anxiety, whereas men exhibited more symptoms of somatic problems comparing the single and dual couples. It was found that male managers with spouses working experienced higher workload than managers whose spouses were not working. In strains also single career male managers had less irritability than dual career male managers. In overall single career male managers had better psychological well-being than others did working women managers had better physical well-being than their working husband did but had poorer psychological well-being.

**STATEMENT OF THE PROBLEM**

For an individual any environment has a certain degree of stress, though of varying duration. When stress is sustained for a long period of time, the problem becomes significant. The higher secondary teacher is to go on periodic self-decreased vacations in the form of absenteeism. School teachers are no exception to this. The individuals entering into teaching field are professionals. They enter into professions and then they professionalize themselves and so they find themselves at loggerheads. Further, in teaching jobs are structured in a way that a worker is simultaneously exposed to both overload and acute time pressure. Generally people under stress express their frustration through some common ways like excessive criticism of government and management and displaying inability to get along with others. A general knowledge of this behaviour in higher secondary school teachers increases the understanding of individuals as well as of groups because, it furnishes one with certain principles. These principles help in recognition of the symptoms of distress and indicate the kind of behaviour one may expect so that steps can be taken to deliberately shape the environment to elicit expected responses. But, in the education department such individual behaviour cannot be easily identified, as individual performance cannot be quantitatively measured as precisely as in teaching field. Symptoms of stress take a long time to erupt. Once it erupts, it not only affects the individual concerned but also the co-workers through strained interpersonal relations and ultimately affects the student's education which forms the very core for the success of education department. Hence occupational stress situations and their perceived impact on higher secondary school teachers are taken up for the present study. The researcher has made an attempt to study the occupational stress among higher secondary school teachers of Madurai district.

**OBJECTIVES**

To analyse the demographic variables among the higher secondary school teachers of government schools.

To measure the levels of occupational stress among the higher secondary teachers of government schools.

The present study attempts to determine the relationship between demographic variables and levels of Occupational stress among Government Higher Secondary School Teachers.

**HYPOTHESIS**

The following null hypotheses were formulated for the present study.

**NULL HYPOTHESIS:** There is no significant relationship between the demographic variables and level of occupational stress among the government higher secondary school teachers.

**ALTERNATIVE HYPOTHESIS:** There is a significant relationship between the variables and level of occupational stress among the government higher secondary school teachers.

**HYPOTHESES RELATING TO HIGHER SECONDARY TEACHERS OCCUPATIONAL STRESS LEVEL**

1. There is no significant association between the personal and demographic variables such as designation, age, salary, teaching experience, marital status, type of family, income of family, number of dependents, number of training programme, subjects handling and location of school of higher secondary school teachers and occupational stress level of government schools.

2. The average occupational stress score of different groups of government higher secondary school teachers (variables such as designation, age, salary, teaching experience, marital status, type of family, income of family, number of dependents, number of training programme, subjects handling and location of school) is the same.

## RESEARCH METHODOLOGY

The present study is based on both primary and secondary data. Primary data have been collected by conducting a survey among 305 sample higher secondary teachers comprising headmasters and higher secondary school teachers of government and aided schools. Secondary data have been collected from books, journals, newspapers, periodicals, reports, internet and unpublished records of Madurai District of Tamil Nadu. Initial instrument was developed by generating 108 items after a thorough understanding of occupational stress among Aided and Government higher secondary school teachers of Madurai district in the state of Tamil Nadu. The first part of the questionnaire was related to personal details of higher secondary teachers, second part relates with measuring of demographic variables relating to occupational stress among the teachers with the help of Chi-square test, F- test (ANOVAs) and Z- test.

### SAMPLING DESIGN

A sample of 305 teachers was taken to meet the sample adequacy, for conducting factor analysis number of sample teachers for the study were selected from the total population. For the purpose of the study (305 Teachers) 30% per cent of the samples were selected by using simple random sampling from three segments by using lottery method because of easy accessibility and affordability. This study is limited to a particular teachers those who are handling the classes in higher secondary teachers in Government schools and none of the teachers those who are handling classes in below higher secondary level and unaided higher secondary school teachers.

**TABLE 1.1: SAMPLE-SIZE OF HIGHER SECONDARY TEACHERS AND HEAD MASTERS**

Category	Head Masters	Higher Secondary School Teachers	Total
Government Schools	23(19.20%)	97(80.8%)	120
Aided Schools	17(9.2%)	168(90.8%)	185
Total	40(13.2%)	265(86.8%)	305

Source: Primary Data.

Table 1.1 shows that out of 305 higher secondary school teachers, 265 (86.8 per cent) are teachers and the remaining 40 (13.2 per cent) are head masters. Among the total teachers, 120 are belonging to government schools and the remaining 185 are belonging to aided schools. Among the 120 government school teachers, 97 (80.8 per cent) are teachers and the remaining 23 (19.2 per cent) are head masters. Among the 185 aided school teachers, 168 (90.8 per cent) are teachers and 17 (9.2 per cent) are head masters.

## RESULTS AND DISCUSSION

### DEMOGRAPHIC VARIABLES AND THE LEVEL OF OCCUPATIONAL STRESS AMONG THE TEACHERS OF GOVERNMENT HIGHER SECONDARY SCHOOLS

The level of occupational stress of government teachers has been measured with the help of 108 statements by adopting Likert scaling method. The occupational stress level of higher secondary school teachers has been classified into three categories namely low, medium and high. The arithmetic mean ( $\bar{X}$ ) and the standard deviation ( $\sigma$ ) were calculated for the 120 observations of score values among the teachers. The calculated arithmetic mean ( $\bar{X}$ ) was 382.24 and the standard deviation ( $\sigma$ ) was 68.89. The score values greater than or equal to  $(\bar{X} + \sigma) = (382.24 + 68.89) = 451.13 = 451$  and the score value less than or equal to  $(\bar{X} - \sigma) = (382.24 - 68.89) = 313.35$  have been classified as high and low level of occupational stress respectively. The score values in between  $(\bar{X} + \sigma)$  and  $(\bar{X} - \sigma) = 313$  and 451 have been classified as medium level of stress.

The identified demographic variables, which might influence the level of occupational stress among higher secondary school teachers, are as follows: designation, age, gender, monthly income, teaching experience, marital status, type of family, number of dependents, subjects handling, and number of training programmes and location of schools. Significance of the relationship of all the above variables with the opinion of higher secondary school teachers about their occupational stress level has been analysed by applying the statistical techniques such as Chi-square test, (ANOVAs) "F" test and "Z" test.

### LEVEL OF OCCUPATIONAL STRESS

Table 1.2 reveals the classification of government school teachers based on the level of occupational stress.

**TABLE 1.2: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS BY THEIR LEVEL OF OCCUPATIONAL STRESS**

Sl.No.	Level of Stress	No. of Teachers	Percentage
1.	Low	25	20.80
2.	Medium	76	63.30
3.	High	19	15.80
	Total	120	100.00

Source: Primary data.

Table 1.2 explains that 76 (63.30 per cent) out of 120 government teachers, had a medium level of occupational stress, 25 teachers (20.80 per cent) had a low level of stress and the remaining 19 teachers (15.80 per cent) had a high level of occupational stress.

### DEMOGRAPHIC VARIABLES AND LEVEL OF OCCUPATIONAL STRESS AMONG SCHOOL TEACHERS

Among the 120 government higher secondary school teachers, 23 were headmasters and the remaining 97 were teachers. The following Table gives the details about the opinion of headmasters and teachers about their level of occupational stress in government schools. The sample government higher secondary school teachers comprise only the teachers who are handling the subjects of Grade 11 and Grade 12 standards.

### DESIGNATION AND LEVEL OF OCCUPATIONAL STRESS

Table 1.3 shows the level of occupational stress among head masters and teachers of higher secondary government schools.

**TABLE 1.3: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR DESIGNATION AND LEVEL OF STRESS**

Sl. No.	Designation	Level of Stress			Total
		Low	Medium	High	
1.	Headmaster	2 (1.7)	17 (14.2)	4 (3.3)	23 (19.2)
2.	Teachers	23 (19.2)	59 (49.1)	15 (12.5)	97 (80.8)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represents percentage to total.

Table 1.3 reveals that out of 23 government teachers, 2 (1.7 per cent) who belong to headmaster cadre had a low level of stress, 17 (14.2 per cent) had a medium level of stress and the remaining 4 (3.3 per cent) had high level of stress. Of the 97 teachers, 23 (19.2 per cent) had a low level of stress, 59 (49.1 per cent) had a medium level and the remaining 15 (12.5 per cent) had a high level of stress.

To test the hypothesis that the designation is independent of the level of occupational stress, the chi-square test has been applied and the calculated value is 2.56, table value at 5 per cent level of significance 5.991 and degrees of freedom is 2. As the calculated chi-square value is less than the table value at 5 per cent level of significance with 2 degrees of freedom, the null hypothesis is accepted. Hence, it may be concluded that there is no significance in the matter of occupational stress based on designation.

#### AVERAGE STRESS SCORE ON THE BASIS OF THEIR DESIGNATION

The average stress score of the government teachers is given in the Table that follows.

**TABLE 1.4: AVERAGE STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR DESIGNATION**

Sl.No.	Group	Average Score	Sample Size
1.	Headmaster	395.09	23
2.	Teacher	379.20	97
	Total	382.24	120

It could be inferred from Table 1.4 that the average stress score of the headmasters (395.09) is higher than the average stress score of the teachers (379.20). It is proposed to test the null hypothesis, that the average stress score of headmasters and teachers is the same "Z" test was applied.

**TABLE 1.5: DESIGNATION AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS – 'Z' test**

Sl.No.	Designation	Average Score	Difference	Standard Error	'Z' Value
1.	Headmaster	395.09	15.89	13.53	1.17
2.	Teacher	379.20			

Since the calculated value of "Z" (1.17) is less than the critical value of "Z" (2.58) at 1% level of significance, the null hypothesis is accepted. Thus, it is concluded that teachers feel better about stress level than the head masters.

#### AGE AND LEVEL OF OCCUPATIONAL STRESS

Age is a factor which determines every individual's eligibility to be appointed to a post and to be retired. Age is a great variable, which is likely to influence the occupational stress level among the teachers.

**TABLE 1.6: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR AGE AND LEVEL OF OCCUPATIONAL STRESS**

Sl. No.	Age (in years)	Level of Stress			Total
		Low	Medium	High	
1.	Below 30 years	0 (0.0)	3 (2.5)	0 (0.0)	3 (2.5)
2.	30 – 40	7 (5.8)	15 (12.5)	5 (4.2)	27 (22.5)
3.	40 – 50	12 (10.0)	33 (27.5)	6 (5.0)	51 (42.5)
4.	Above 50	6 (5.0)	25 (20.8)	8 (6.7)	39 (32.5)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represent percentage to total.

Table 1.6 shows that out of 3 teachers, who fall in the age group of below 30 years, 3 (2.5 per cent) had a medium level of stress. Of the 27 teachers, 7 (5.8 per cent) who fall under the age group between 30-40 years had a low level of stress, 15 (12.5 per cent) had a medium level of stress and the remaining 5 (4.2 per cent) had a high level of stress. Out of 51 teachers, 12 (10.0 per cent) who fall under the age group of between 40-50 years had a low level of stress, 33 (27.5 per cent) had a medium level and the remaining 6 (5.0 per cent) had a high level of stress. Of the 39 teachers, 6 (5.0 per cent) who fall under the age group of above 50 years had a low level of stress, 25 (20.8 per cent) had a medium level of stress and the remaining 8 (6.7 per cent) had a high level of stress.

To test the null hypothesis that the age is independent of the level of occupational stress, the chi-square test has been applied and the calculated value 4.28, table value at 5 per cent level of significance 12.592 and degrees of freedom is 6. As the calculated chi-square value is less than the table value at 5 per cent level of significance with 6 degrees of freedom, the null hypothesis is accepted. Therefore, it may be concluded that there is no significant relationship between age and level of occupational stress among the government higher secondary school teachers.

#### AVERAGE STRESS SCORE ON THE BASIS OF THEIR AGE

The average stress score of the three groups of government school teachers on the basis of their age is given in the Table that follows.

**TABLE 1.7: AVERAGE OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR AGE**

Sl.No.	Age Group (in years)	Average Score	Sample Size
1.	Below 30 years	378.67	3
2.	30 – 40	370.07	27
3.	40 – 50	384.09	51
4.	Above 50 years	388.51	39
	Total	382.24	120

Table 1.7 shows that the average stress score of the government teachers belonging to age group between 30-40 years (370.07) is lower than the average stress score of those below 30 years (378.67), those between 40-50 years (384.09) and those above 50 years (388.51). It is proposed to test the null hypothesis that the average stress score of the four groups of government school teachers on the basis of their age is the same. "F" test was applied.

**TABLE 1.8: AGE AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS: 'F' TEST**

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	'F' Value
Between Samples	5745.22	3	1915.07	0.39
Within Samples	558928.77	116	4818.35	
Total	564673.99	119		

The calculated value of "F" (0.39) less than the table value of "F" (4.60) for 3 & 116 degrees of freedom at 1 per cent level of significance. Therefore the null hypothesis is accepted. Hence, there is no significant difference in the average stress score of the four groups among the government teachers.

#### GENDER AND LEVEL OF OCCUPATIONAL STRESS

Here, an analysis made of the relationship between the gender of the school teacher and occupation stress.

**TABLE 1.9: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR GENDER AND LEVEL OF OCCUPATIONAL STRESS**

Sl. No.	Gender	Level of Stress			Total
		Low	Medium	High	
1.	Male	10 (8.3)	42 (35.0)	17 (14.2)	69 (57.5)
2.	Female	15 (12.5)	34 (28.3)	2 (1.7)	51 (42.5)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represent percentage to total.

Table 1.9 shows that of the 69 male teachers, 10 (8.3 per cent) had a low level of stress, 42 (35.0 per cent) had a medium level of stress and the remaining 17 (14.2 per cent) had a high level of stress. Of the 51 female teachers, 15 (12.5 per cent) had a low level of stress, 34 (28.3 per cent) had a medium level of stress and the remaining 2 (1.7 per cent) had a high level of stress.

To test the null hypothesis that gender is independent of the level of occupational stress, the chi-square test has been applied and calculated value is 11.24, table value at 5 per cent level of significance 5.99 and degrees of freedom 2. As the calculated chi-square value is more than the table value, the null hypothesis is rejected. Therefore, it may be concluded that there is an association between gender and the level of occupational stress among the government higher secondary school teachers.

**AVERAGE STRESS SCORE ON THE BASIS OF THEIR GENDER**

The average stress score of the teachers on the basis of their gender is given in the Table that follows.

**TABLE 1.10: AVERAGE OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR GENDER**

Sl.No.	Gender	Average Score	Sample Size
1.	Male	401.43	69
2.	Female	356.27	51
	Total	382.24	120

Table 1.10 sheds light that the average stress score of female government teachers (356.27) is lower than the average stress score of male teachers (401.43). It is proposed to test the null hypothesis that the average stress score of the two groups of government school teachers on the basis of their gender is the same. "Z" test was applied.

**TABLE 1.11: GENDER AND OCCUPATIONAL STRESS SCORE OF government HIGHER SECONDARY TEACHERS: 'Z' TEST**

Sl.No.	Sex/Gender	Average Score	Difference	Standard Error	'Z' Value
1.	Male	401.43	45.16	11.74	3.85
2.	Female	356.27			

Since the calculated value of "Z" (3.85) exceeds the critical value of "Z" (2.58) at 1 per cent level of significance, the null hypothesis is rejected. Thus, it is concluded that female teachers experience less stress than the male teachers.

**SALARY AND LEVEL OF OCCUPATIONAL STRESS**

The following Table gives clear information regarding the salary of the government school teachers and the level of occupational stress in the school.

**TABLE 1.12: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR SALARY AND LEVEL OF OCCUPATIONAL STRESS**

Sl. No.	Salary (in Rs.)	Level of Stress			Total
		Low	Medium	High	
1.	Below 15000	2 (1.7)	3 (2.5)	3 (2.5)	8 (6.7)
2.	15000 – 20000	9 (7.5)	32 (26.7)	9 (7.5)	50 (41.7)
3.	20000 – 25000	10 (8.3)	19 (15.8)	2 (1.7)	31 (25.8)
4.	Above 25000	4 (3.3)	22 (18.3)	5 (4.2)	31 (25.8)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represent percentage to total.

It could be seen from Table 1.12 that of the total government teachers, 8 teachers who fall under the income group of below Rs.15000, 2 (1.7 per cent) had a low level of stress, 3 (2.5 per cent) had a medium level of stress and the remaining 3 (2.5 per cent) had a high level of stress.

Out of 50 teachers, who fall under the income group of Rs.15000-20000, 9 (7.5 per cent) had a low level of stress, 32 (26.7 per cent) had a medium level of stress and the remaining 9 (7.5 per cent) teachers had a high level of stress. Of the 31 teachers, who fall under the income group of Rs.20000-25000, 10 (8.3 per cent) had a low level of stress, 19 (15.8 per cent) had a medium level of stress and the remaining 2 (1.7 per cent) had a high level of stress. Of the 31 teachers, who fall under the income group of above Rs.25000, 4 (3.3 per cent) teachers had a low level of stress, 22 (18.3 per cent) had a medium level and the remaining 5 (4.2 per cent) had a high level of stress.

To test the null hypothesis that salary is independent of the level of occupational stress, the chi-square test has been applied and calculated value 8.53, table value at 5 per cent level of significance 12.592, degree of freedom 6. As the calculated chi-square value is less than the table value at 5 per cent level of significance with 6 degrees of freedom, the hypothesis is accepted. Therefore, it may be concluded that there is no association between salary and their level of occupational stress among government higher secondary school teachers.

**AVERAGE STRESS SCORE ON THE BASIS OF THEIR SALARY**

The average occupational stress score of the government school teachers is given in the Table that follows.

**TABLE 1.13: AVERAGE STRESS SCORE OF government HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR SALARY**

Sl.No.	Salary (in Rs.)	Average Score	Sample Size
1.	Below 15000	398.13	8
2.	15000 – 20000	386.78	50
3.	20000 – 25000	364.48	31
4.	Above 25000	388.58	31
	Total	382.24	120

It is seen from Table 1.13 that the average stress score of teachers who fall under the monthly salary between Rs.20, 000 to Rs.25, 000 (364.58) is lower than that of salary between Rs.15, 000 to Rs.20, 000 (386.78), salary above Rs.25, 000 (388.58) and that of the teachers who fall under the income groups of below Rs.15, 000 (398.13) in government higher secondary school. It is proposed to test the null hypothesis that the average stress score of the four groups remains the same. 'F' test was applied.

TABLE 1.14: SALARY AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS: F-TEST

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	'F' Value
Between Samples	14069.25	3	4689.75	0.99
Within Samples	550604.75	116	4746.59	
Total	564673.99	119		

"F" test proves that there is no significant difference among the four salary groups of government higher secondary school teachers with regard to average stress score.

#### YEARS OF EXPERIENCE AND LEVEL OF OCCUPATIONAL STRESS

Here, it is decided to analyse the extent of years of experience of the teachers in relation to their occupational stress level. The following Table gives clear information regarding the years of experience of teachers and their level of occupational stress.

TABLE 1.15: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR YEARS OF EXPERIENCE AND LEVEL OF OCCUPATIONAL STRESS

Sl. No.	Year of Experience (in years)	Level of Stress			Total
		Low	Medium	High	
1.	Below 5	4 (3.3)	5 (4.2)	2 (1.7)	11 (9.2)
2.	5 – 10	10 (8.3)	26 (21.7)	4 (3.3)	40 (33.3)
3.	10 – 15	4 (3.3)	25 (20.8)	4 (3.3)	33 (27.5)
4.	Above 15	7 (5.8)	20 (16.7)	9 (7.5)	36 (30.0)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represent percentage to total.

Table 1.15 shows that among the total government teachers, from 11 teachers who had the years of experience below 5 years, 4 (3.3 per cent) had a low level of stress, 5 (4.2 per cent) had a medium level of stress and the remaining 2 (1.7 per cent) had a high level of stress.

Of the 40 teachers, who had the years of experience between 5 – 10 years 10 (8.3 per cent) had a low level of stress, 26 (21.7 per cent) had a medium level of stress and the remaining 4 (3.3 per cent) had a high level of stress. Out of 33 teachers who had the years of experience between 10-15 years, 4 (3.3 per cent) had a low level of stress, 25 (20.8 per cent) had a medium level of stress and the remaining 4 (3.3 per cent) had a high level of stress. Of the 36 teachers who had the years of experience above 15 years, 7 (5.8 per cent) had a low level of stress, 20 (16.7 per cent) had a medium level of stress and the remaining 9 (7.5 per cent) had a high level of stress.

To test the hypothesis that the years of experience is independent of the level of occupational stress, the chi-square test has been applied and the calculated value is 7.66, table value at 5 per cent level of significance 12.592 and degrees of freedom 6. As the calculated chi-square value is less than the table value at 5 per cent level of significance with 6 degrees of freedom the hypothesis is accepted. Therefore, it may be concluded that there is no significant relationship between years of experience and their level of occupational stress among the government higher secondary school teachers.

#### AVERAGE STRESS SCORE ON THE BASIS OF THEIR YEARS OF EXPERIENCE

The average stress score of the government higher secondary teachers on the basis of their years of experience is given in the Table that follows.

TABLE 1.16: AVERAGE STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR YEARS OF EXPERIENCE

Sl.No.	Years of Experience	Average Score	Sample Size
1.	Below 5 Years	358.36	11
2.	5 – 10 Years	365.53	40
3.	10 – 15 Years	401.73	33
4.	Above 15 Years	390.25	36
	Total	382.24	120

It could be observed from Table 1.16 that the average stress score of the teachers who are having the years of experience between 10 to 15 years (401.73) is higher than that of those with experience above 15 years (390.53) experience between 5 to 10 years (365.53) and experience below 5 years. It is proposed to test the hypothesis that the average occupational stress score of the three groups of government teachers on the basis of their years of experience is the same. "F" test was applied.

TABLE 1.17: YEAR OF EXPERIENCE AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS: F-TEST

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	'F' Value
Between Samples	32288.18	3	10765.73	2.35
Within Samples	532385.82	116	4589.53	
Total	564674.00	119		

The calculated value of "F" (2.35) is less than the table value of "F" (3.95) for 3 & 116 degrees of freedom at 1 per cent level of significance. Therefore the hypothesis is accepted. Hence, there is no significant difference in the average score of the three groups among the government school teachers.

#### MARITAL STATUS AND LEVEL OF OCCUPATIONAL STRESS

The following Table gives clear information regarding the marital status and their level of occupational stress.

TABLE 1.18: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR MARITAL STATUS AND LEVEL OF OCCUPATIONAL STRESS

Sl. No.	Marital Status	Level of Stress			Total
		Low	Medium	High	
1.	Married	4 (3.3)	7 (5.8)	2 (1.7)	13 (10.8)
2.	Unmarried	21 (17.5)	69 (57.5)	17 (14.2)	107 (89.2)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represent percentage to total.

Table 1.18 shows that out of 13 married teachers, 4 (3.3 per cent) had a low level of stress, 7 (5.8 per cent) had a medium level of stress and the remaining 2 (1.7 per cent) had a high level of stress. Out of 107 unmarried teachers, 21 (17.5 per cent) had a low level of stress, 69 (57.5 per cent) had a medium level and the remaining 17 (14.2 per cent) teachers had a higher degree of stress.

To test the hypothesis that the marital status is independent of the level of occupational stress, the chi-square test has been applied and the calculated value 0.90, table value at 5 per cent level of significance 5.991 and degrees of freedom is 2. As the calculated chi-square value is less than the table value at 5 per cent level of significance with 2 degrees of freedom, the null hypothesis is accepted. Therefore, it may be concluded that there is no association between marital status and the level of occupational stress among government higher secondary school teachers.

#### AVERAGE STRESS SCORE ON THE BASIS OF THEIR MARITAL STATUS

The average stress score of the Government higher secondary teachers on the basis of their marital status is given in the Table that follows:

TABLE 1.19: AVERAGE STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR MARITAL STATUS

Sl.No.	Marital Status	Average Score	Sample Size
1.	Married	360.46	13
2.	Unmarried	384.89	107
	Total	382.24	120

Table 1.19 indicates that the average stress score of the government higher secondary teachers belonging to married (360.46) is lower than the average stress score of the teachers who are unmarried (384.89). It is proposed to test the hypothesis that the average occupational stress score of the two groups of sample government teachers on the basis of their marital status is the same. "Z" test was applied.

TABLE 1.20: MARITAL STATUS AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS: 'Z' TEST

Sl.No.	Marital Status	Average Score	Difference	Standard Error	'Z' Value
1.	Married	360.46	24.43	22.42	1.09
2.	Unmarried	384.89			

The calculated value of "Z" (1.09) does not exceed the critical value of "Z" (2.58) at 1 per cent level of significance. Therefore the null hypothesis is accepted. Hence it is concluded that there is no relationship between marital status and level of occupational stress.

#### TYPE OF FAMILY AND LEVEL OF OCCUPATIONAL STRESS

Type of family is also an important factor to be considered for the welfare of the teachers. Hence, it is decided to analyse the extent of nature of type of the family of the government teachers in relation to their occupational stress level.

TABLE 1.21: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR TYPE OF FAMILY AND LEVEL OF OCCUPATIONAL STRESS

Sl. No.	Type of Family	Level of Stress			Total
		Low	Medium	High	
1.	Joint	8 (6.7)	26 (21.6)	8 (6.7)	42 (35.0)
2.	Nuclear	17 (14.2)	49 (40.8)	12 (10.0)	78 (65.0)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represent percentage to total.

It could be inferred from Table 1.21 that out of 42 government teachers, 8 (6.7 per cent) teachers who fall under the category of joint family, had a low level of stress, 26 (21.6 per cent) had a medium level of stress and the remaining 8 (6.7 per cent) had a higher degree of stress.

Out of 78 teachers, 17 (14.2 per cent) who fall under the category of nuclear family had a low level of stress, 49 (40.8 per cent) had a medium level of stress and the remaining 12 (10.0 per cent) had a higher degree of stress.

To test the hypothesis that type of family is independent of the level of occupational stress, the chi-square test has been applied and the calculated value 0.52, table value at 5 per cent level of significance 5.991 and degrees of freedom is 2. As the calculated chi-square value is less than the table value at 5 per cent level of significance with 2 degrees of freedom, the null hypothesis is accepted. Therefore, it may be concluded that there is no association between type of family and their level of occupational stress among government higher secondary school teachers.

#### AVERAGE STRESS SCORE ON THE BASIS OF THEIR TYPE OF FAMILY

The occupational stress score of the teachers on the basis of their nature of family is given in the Table that follows.

TABLE 1.22: AVERAGE STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR TYPE OF FAMILY

Sl.No.	Type of Family	Average Score	Sample Size
1.	Joint	378.14	42
2.	Nuclear	383.59	77
	Total	381.67	119

It could be inferred from table 1.22 that the average score of the teachers who have joint family (378.14) is lower than that of nuclear family (383.59). It is proposed to test the hypothesis that the average stress score of the government higher secondary teachers of the two groups on the basis of their type of family remains the same. "Z" test was applied to the type of family.

TABLE 1.23: TYPE OF FAMILY AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS: 'Z' TEST

Sl.No.	Type of Family	Average Score	Difference	Standard Error	'Z' Value
1.	Joint	378.14	5.45	13.64	0.40
2.	Nuclear	383.59			

The calculated value of "Z" (0.40) does not exceed the table value of "Z" (2.58) at 1 per cent level of significance. Therefore the null hypothesis is accepted. Thus it is concluded that there is no significant relationship between the independent variables.

#### SUBJECTS HANDLING AND LEVEL OF OCCUPATIONAL STRESS

Here, it is decided to analyse the extent of subjects handled by the government teachers in relation to their occupational stress level. The following Table gives clear information regarding the subjects handling of the teachers and their level of stress.

TABLE 1.24: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR SUBJECTS HANDLING AND LEVEL OF OCCUPATIONAL STRESS

Sl. No.	Subjects Handling	Level of Stress			Total
		Low	Medium	High	
1.	Arts	12 (10.1)	37 (31.1)	11 (9.2)	60 (50.0)
2.	Science	13 (10.9)	23 (19.3)	3 (2.5)	39 (32.5)
3.	Vocational	0 (0.0)	16 (13.3)	5 (4.2)	21 (17.5)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represents percentage to total.

Table 1.24 shows that out of 60 teachers, 12 (10.1 per cent) who were handling arts subjects had a low level of stress, 37 (31.1 per cent) had a medium level of stress and the remaining 11 (9.2 per cent) had the higher degree of stress. Out of 39 teachers, 13 (10.9 per cent) who were handling science subjects had a low level of stress, 23 (19.3 per cent) had a medium level of stress and the remaining 3 (2.5 per cent) had a higher degree of stress level. Of the 20 teachers, 16 (13.3 per cent) who were handling vocational subjects had a medium level of stress and the remaining 5 (4.2 per cent) had a higher degree of stress.

To test the hypothesis that subjects handling is independent of the level of occupational stress, the chi-square test has been applied and the calculated value is 10.53, table value at 5 per cent level of significance 9.488 and degrees of freedom is 4. As the calculated chi-square value is more than the Table value at 5 per cent level of significance with 4 degrees of freedom, the null hypothesis is rejected. Therefore, it may be concluded that there is an association between subjects handling and their level of occupational stress among government school teachers.

#### AVERAGE STRESS SCORE ON THE BASIS OF SUBJECTS HANDLING

The occupational stress score of the government teachers on the basis of subjects handling is given in the Table that follows:

TABLE 1.25: AVERAGE STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR SUBJECTS HANDLING

Sl.No.	Subjects Handling	Average Score	Sample Size
1.	Arts	377.35	60
2.	Science	368.03	39
3.	Vocational	421.25	21
	Total	382.24	120

Table 1.25 depicts that the average stress score of the teachers who are handling science subjects (368.03) is lower than that of the teachers who are handling arts subjects (377.35) and vocational subjects (421.25). It is proposed to test the hypothesis, that the average occupational stress score of the teachers of the three groups remains the same. "F" test was applied.

TABLE 1.26: SUBJECTS HANDLING AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS: F-TEST

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	'F' Value
Between Samples	39711.84	2	19855.92	4.43
Within Samples	520332.37	116	4485.62	
Total	560044.22	118		

The calculated value of "F" (4.43) less than the table value of "F" (4.79) for 2 and 116 degrees of freedom at 1% level of significance. Therefore the null hypothesis is accepted. Hence it is concluded that there is no significant difference among the three groups, of government teachers in the stress level in school because of the subjects they handle.

#### LOCATION OF SCHOOL AND LEVEL OF OCCUPATIONAL STRESS

Location of school is an important factor to be considered for stress among teachers. The following table gives clear information regarding the location of the school and the teacher level of occupational stress.

TABLE 1.27: CLASSIFICATION OF GOVERNMENT HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR SCHOOL LOCATION AND LEVEL OF OCCUPATIONAL STRESS

Sl. No.	Location of School	Level of Stress			Total
		Low	Medium	High	
1.	Rural	20 (16.7)	57 (47.5)	16 (13.3)	93 (77.5)
2.	Urban	2 (1.7)	10 (8.3)	3 (2.5)	15 (12.5)
3.	Semi-Urban	3 (2.5)	9 (7.5)	0 (0.0)	12 (10.0)
	Total	25 (20.8)	76 (63.3)	19 (15.8)	120 (100.0)

Source: Primary data.

Note: Figures in brackets represent percentage to total.

Table 1.27 indicates that out of 93 (77.5 per cent) government school teachers, 20 (16.7 per cent) who were working in the schools located at rural areas had a low level of stress, 57 (47.5 per cent) had a medium level of stress and the remaining 16 (13.3 per cent) had a high level of stress. Of the 15 teachers working in urban areas, 2 (1.7 per cent) working in the schools located at urban areas had a low level of stress, 10 (8.3 per cent) had a medium level of stress and the remaining 3 (2.5 per cent) had a high level of stress. Out of 12 teachers working in semi-urban areas, 3 (2.5 per cent) had a low level of stress and the remaining 9 (7.5 per cent) had a medium level of stress.

To test the null hypothesis that location of the school is independent of the level of occupational stress, the chi-square test has been applied and the calculated value is 3.05, table value at 5 per cent level of significance 9.488 and degrees of freedom is 4. As the calculated chi-square value is less than the table value at 5 per cent level of significance with 4 degrees of freedom, the null hypothesis is accepted. Therefore, it may be concluded that there is no association between location of the school and their level of occupational stress among government higher secondary teachers.

#### AVERAGE STRESS SCORE ON THE BASIS OF THEIR LOCATION OF SCHOOL

The average occupational stress score of the three groups of government higher secondary teachers on the basis of their school location is given in the Table that follows.

**TABLE 1.28: AVERAGE STRESS SCORE OF government HIGHER SECONDARY TEACHERS ON THE BASIS OF THEIR NUMBER OF THEIR LOCATION OF THE SCHOOL**

Sl.No.	Location of School	Average Score	Sample Size
1.	Rural	387.27	93
2.	Urban	384.80	15
3.	Semi-Urban	340.08	12
	Total	382.24	120

It is inferred from Table 1.28 that the average stress score of teachers who are hailing from semi-urban (340.08) is lower than those of other two categories like rural (387.27) and urban (384.80). It is proposed to test the null hypothesis, that the average stress score of the teachers of the three groups vary the same. "F" test was applied.

**TABLE 1.29: LOCATION OF SCHOOL AND OCCUPATIONAL STRESS SCORE OF GOVERNMENT HIGHER SECONDARY TEACHERS: F-TEST**

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	'F' Value
Between Samples	23776.39	2	11888.19	2.57
Within Samples	540897.59	117	4623.06	
Total	564673.99	119		

Since the calculated value of "F" (2.57) is less than the table value of "F" (4.79) for 2 & 117 degrees of freedom at 1% level of significance, the null hypothesis is accepted. Hence, it is concluded that there is no significant difference among the three categories of government school teachers with stress level in higher secondary school because of the location of school.

## FINDINGS OF THE STUDY

### [DEMOGRAPHIC VARIABLES AND OCCUPATIONAL STRESS LEVELS AMONG THE TEACHERS OF GOVERNMENT HIGHER SECONDARY SCHOOL]

The F- test (ANOVA) applied reveals that there exists significant difference in the average stress scores of different groups of teachers classified on the basis of the variables such as designation, age, marital status, teaching experience, monthly income and subjects handling. The Z – test applied reveals that there is a significant difference in the average stress scores of the two groups of teachers classified on the basis of the designation, marital status and type of family.

Of the 120 higher secondary government school teachers, 20.80 per cent of them opined the stress level is low, 63.30 per cent of government teachers opined the stress level is medium, and the remaining 15.80 per cent of the teachers expressed that they had been victims of high level of occupational stress. Average stress score of 120 government teachers is 382.24.

Among the two **designation** groups of government school teachers, 19.20 per cent of teachers felt that the occupational stress level under government school was extremely low. In case of government teachers the average stress score of those under the group of head master (359.09) is lower than the average score of the teachers.

Among the four **age** groups of government teachers, 10.0 per cent of those who fall under the age group between 40-50 years who feel that the occupational stress is tolerable. In case of the average stress score of those fall under the age group between 30-40 years (370.07) is lower than the average stress score of the other three groups of teachers.

Between the two **gender** groups of government teachers, 12.50 per cent of women teachers feel that the occupational stress level is low. In case of average stress score of those in women (356.27) is lower than the average stress score of the male group of teachers.

Among the four **income** groups of government school teachers, 8.30 per cent of those who fall under the monthly income between Rs.20, 000-Rs.25, 000 whose opinion about the occupational stress level are low. It is higher than the other groups of income. In case of average stress score of those who are under the income group between Rs.20, 000-Rs.25, 000 (364.48) is lower than the average stress score of the other three groups of teachers.

Among the four **experience** groups of government teachers, 8.30 per cent of those who have the teaching experience between 5-10 years the occupational stress level are low. The average stress score of teachers who are having the teaching experience below 5 years (358.36) is lower than the experienced group of teachers.

Between the two **marital** status groups of government teachers, 17.50 per cent of those belonging to unmarried felt that the occupational stress is low. The average stress score of married teachers (360.46) in the group is lower than that of the group of teachers.

Between the two **family** groups of the government school teachers, 14.20 per cent of those who fall under the category of nuclear family feel that the occupational stress level is low. The average stress score of teachers in joint family (378.14) is lower than that of the other groups.

Among the three groups **handling different subjects** of government school teachers, 10.9 per cent of those who are handling science subjects felt that the occupational stress level is low. The average stress score of those who are handling science subjects lower than that the other group of teachers.

Among the three groups of government teachers, 16.70 per cent of those whose schools are located at **rural areas** felt that the occupational stress level is low. In case of government teachers average stress score of those who are working in the school located at semi-urban areas (340.08) is lower than the average score of the other groups of teachers.

## SUGGESTIONS

The present study concludes that nearly 63.30 per cent of government teachers opined the occupational stress level is medium and only 12.50 per cent of female teachers feel that the occupational stress level is low. Male teachers face more occupational stress than their female teachers. The study also finds that occupational stress is most prevalent among teachers, among the three groups handling different subjects of government school teachers, 10.9 per cent of those who are handling science subjects felt that the occupational stress level is low. Further, there is no significant difference is seen between the designation, age, salary, year of experience, marital status, type of family and location of school. Gender indicates that occupational stress exists for both male and female teachers at all levels of experience and subject handling in different majors like arts and science and social studies experience in occupation among government teachers. So, there is a need to provide proper favorable environment and support to teachers to maintain individual occupational stress at their workplace.

## CONCLUSIONS

The progress of a nation is limited to its productive capacity, which in turn depends upon the calibre of its higher secondary education. The education system in general and the higher secondary education system in particular are instruments to develop the human capital as economic assets for wealth generation and also as social assets for improving the quality of the life of the people. The education system should provide scope for understanding several major socio-economic changes affecting the society that include global economic integration, national economic reforms, changing demographic pattern, increased school's enrolment, reduced drop-out rate, social norms favouring women and weaker sections, increasing environmental consciousness, changing family finances,

demands of labour market and so on. Teachers should be positive in facing their challenges, which will help them in improving their functional skills and reduce occupational stress, so that their profession is not affected. It is recommended that regular assessment of stress level should be conducted for preventive measures. Moreover that, the government educational department should check that, supervision, support and relationship with the teachers are properly taken care of and enhanced most strongly. Most importantly, it is recommended that principals and supervisors should investigate the causes for occupational stress and evaluate the organizational climate of the school. They should also suggest ways, like workshops and seminars to improve and cope with stress. Government must take the time to really understand the concerns of their higher secondary teachers in order to find ways to reduce the stressors that affect them. The researcher believes that Government school systems must support the needs of teachers in order to maintain an efficient and effective labor force that are up to the challenge of educating a diverse student population. The researcher believes the same principles must be applied when considering how best to support the educational system's most valuable asset, the teacher workforce.

### SUGGESTIONS FOR FUTURE RESEARCH

A model teacher attracts the attention of researchers in various fields. Research in the near future can be attempted to study the following.

1. Occupational Stress, "A Comparative Study between Rural and Urban Higher Secondary School Teachers."
2. Occupation Stress, "A State-wise Comparative Study of Higher Secondary School Teachers".

### REFERENCES

#### BOOKS

1. Caplan, R.D., Cobb, S., French, J. Van Harrison, R. and Pinneau, S.J., (1975), "Job Demands and Worker Health", Washington D.C.
2. "European Commission", Directorate – General for Employment and Social Affairs.
3. Lazarus (1960), "Psychological Stress and Coping Process", McGraw Hill, New York.
4. Selye, H. (1956), "the Stress of Life", McGraw Hill, New York.
5. "Stress at work", United States National Institute of Occupational Safety and Health, Cincinnati, 1999.

#### JOURNAL AND ARTICLES

6. Anita Devi, "Occupational Stress: A Comparative Study of Women in Different occupations", *Trajan*, 35(1), pp.61-73, 2006-07.
7. Barmby, P. (2006), "Improving teacher recruitment and retention: the importance of workload and pupil behavior". *Educational Research*, 48(3), 247-265.
8. Cooper, C.L., and Marshall, J. (1976), "Occupational Sources of Stress: a Review of Literature Relating to Coronary Heart Disease and Mental Health", *Journal of Occupational Psychology*, 49, pp.11-20.
9. Cooper, C.L., Sloan, S.J. and Williams, S. (1988), "Occupational Stress Indicator", Windsor: NFER, Nelson.
10. Dhanalakshmi, R. "Factors Predicting Stress of Employees in a Public Transport Corporation", *SMART Journal of Business Management Studies*, 4(1), pp.59-62, 2008.
11. Jha, S.S. "Job Stress and Employee Strain in Indian Executives", *Work and Stress*, 2, 1988.
12. Kyriacou, S., Kunc, R., Stephens, P. and Hultgren, A. (2003), "Student teachers' expectations of teaching as a career in England and Norway", *Educational Review*, 55, pp. 255-263.
13. Leimann, K. B., Murdock, G. F., & Waller, W. R. (2008), "The staying power of mentoring". *The Delta Kappa Gamma Bulletin*, pp. 28-31
14. Rajeswari, T.R. "Employee Stress: A Study with Reference to Bank Employees", *Indian Journal of Industrial Relations*, 27(4), 1992.
15. Reddy, V.S. and P.V. Ramamurthy, (1991) "The Relation between Stress Experience on the Job-Age, Personality and General Ability," *Psychological Studies*, Vol. 36(2).
16. Reddy, V.S. and Ramamurthy, P.V. "The Relation between Stress Experience on the Job-Age, Personality and General Ability", *Psychological Studies*, 36(2), 1991.
17. Sargent, T. and Hannum, E.(2005), "Keeping Teachers Happy Job Satisfaction among Primary School Teachers in Rural Northwest China," *Comparative Education Review*, 49(2)
18. Singh A.K and, Sehgal, P. (1995), "Men and Women in Transition: Patterns of Stress, Strain and Social Relations", *Vikalpa*, 20(1), pp.13-22.

**HUMAN RESOURCE INFORMATION SYSTEM****DR. NEHA TOMAR SINGH****LECTURER****BHARTIYA VIDYA BHAVAN- USHA & LAKSHMI MITTAL INSTITUTE OF MANAGEMENT  
NEW DELHI****ABSTRACT**

A HRIS, or Human Resource Information System, is a software solution for small to mid-sized businesses to help automate and manage their HR, payroll, and management and accounting activities. A HRIS generally should provide the capability to more effectively plan, control and manage HR costs; achieve improved efficiency and quality in HR decision making; and improve employee and managerial productivity and effectiveness. My research on HRIS is descriptive exploratory basically based on secondary data collected from various sources like internet, books, company's websites. The study will have an important implication in throwing light on how technology can be used in human resource system and its benefits. as its an emerging area in India so much is not known and also not been practiced in India regarding HRIS. This paper however helps to provide information relating to this and would prove beneficial for the companies who are still using the old methods

**KEYWORDS**

HRIS, Human Resource, Benefits, Company, Automate and Manage.

**INTRODUCTION**

The Human Resource Information System (HRIS) is a software or online solution for the data entry, data tracking, and data information needs of the Human Resources, payroll, management, and accounting functions within a business. HRIS reports data on all employees to whom the company pays or reimburses salaries or benefits, regardless of funding sources or reporting system; maintains data on former and current employees; and stores historical personnel data for inquiry and analysis. HRIS also helps in complying with salary administration provisions, benefits, helps management in taking decisions regarding human resource issues like recruitment, selection, training & development etc. and analyze the use of their human resources

The Human Resource Information Systems (HRIS) provide overall:

- Management of all employee information.
- Reporting and analysis of employee information.
- Company-related documents such as employee handbooks, emergency evacuation procedures, and safety guidelines.
- Benefits administration including enrollment, status changes, and personal information updating.
- Complete integration with payroll and other company financial software and accounting systems.
- Applicant and resume management.

**THE EVOLUTION OF THE HRIS**

- First, paper files were located in the Personnel department.
- Then, punched card and magnetic media files were located in IS.
- Government legislation in the 1960s and 70s eventually called management's attention to the importance of HR data.
- In the late 1970's the concept of an HRIS was born.

**HISTORY OF HRIS**

- 1950's – HRIS was virtually non-existent
- 1960's – Only Few Organizations were used to implement HRIS
- 1970's – Organizations realize the need of HRIS
- 1980's – HRIS was implemented by most of the organizations
- 1990's - There were numerous vendors of HRIS in the market
- Human resource information systems (HRIS) have increasingly transformed since it was first introduced at General Electric in the 1950s. HRIS has gone from a basic process to convert manual information keeping systems into computerized systems, to the HRIS systems that are used today. Human resource professionals began to see the possibility of new applications for the computer. The idea was to integrate many of the different human resource functions. The result was the third generation of the computerized HRIS, a feature-rich, broad-based, self-contained HRIS. The third generation took systems far beyond being mere data repositories and created tools with which human resource professionals could do much more.

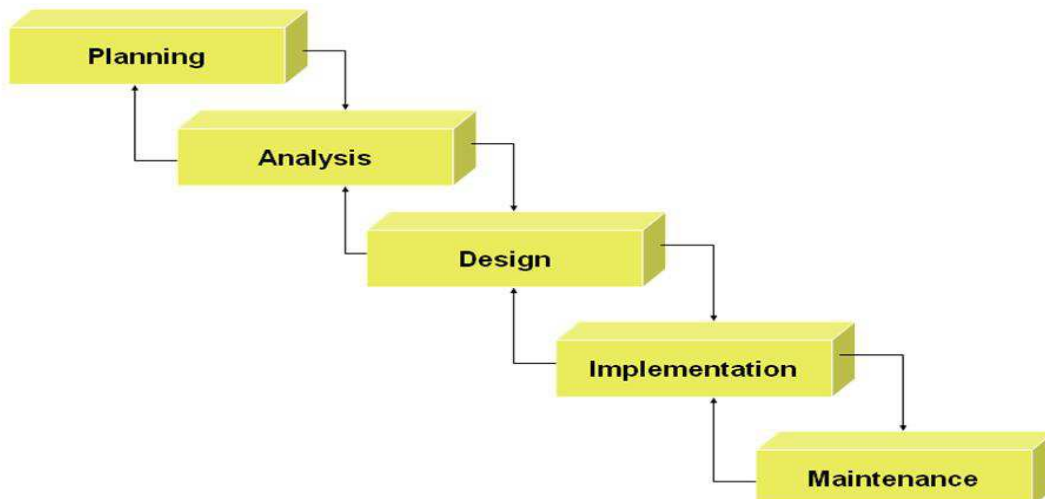
**WHY HRIS?**

With an appropriate HRIS, Human Resources staff enables employees to do their own benefits updates and address changes, thus freeing HR staff for more strategic functions. Additionally, data necessary for employee management, knowledge development, career growth and development, and equal treatment is facilitated. Finally, managers can access the information they need to legally, ethically, and effectively support the success of their reporting employees. The HRIS that most effectively serves companies tracks:

- attendance and PTO use,
- pay raises and history,
- pay grades and positions held,
- performance development plans,
- training received,
- disciplinary action received,
- personal employee information, and occasionally,
- management and key employee succession plans,
- high potential employee identification, and
- applicant tracking, interviewing, and selection.

**HRIS SYSTEM DEVELOPMENT LIFE CYCLE**

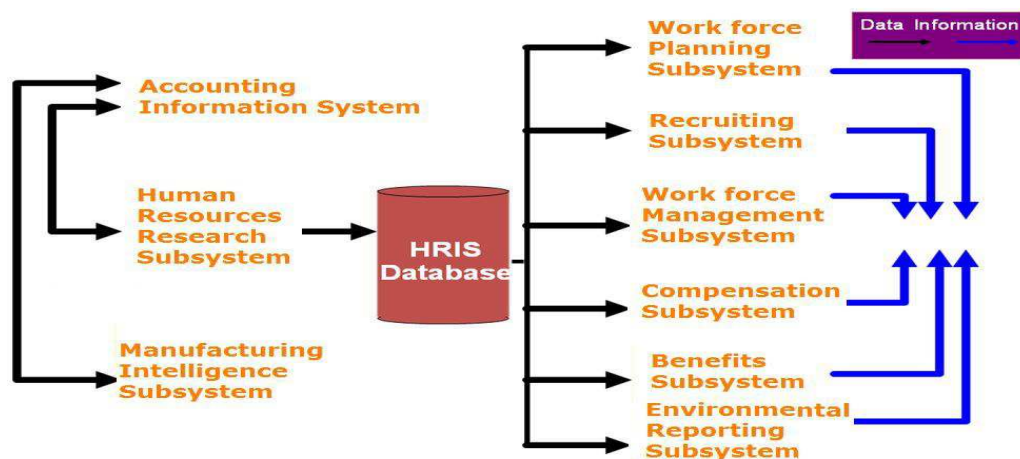
FIG. 1



- First of all one should decide the objective of introducing and implementation of HRIS in the company
- Then identify various HRIS projects. After that set the company's priorities and in accordance select the project. Then analyze the resources of the company and the resource requirement of the project. Then set a schedule and develop the HRIS plan. After that analyze the plan that whether it is fulfilling the requirements and needs of the company and it is feasible or not. Then design the HRIS system and finally implement it in the company. Lastly, maintain the HRIS in the company which is being implemented.

**HRIS MODEL**

FIG. 2



This model shows how actually the HRIS works and how it helps in various functioning of human resource department. Here human resource department can fetch various data and information from HRIS database which can be utilized in human resource planning, recruiting, compensation system, benefit system etc.

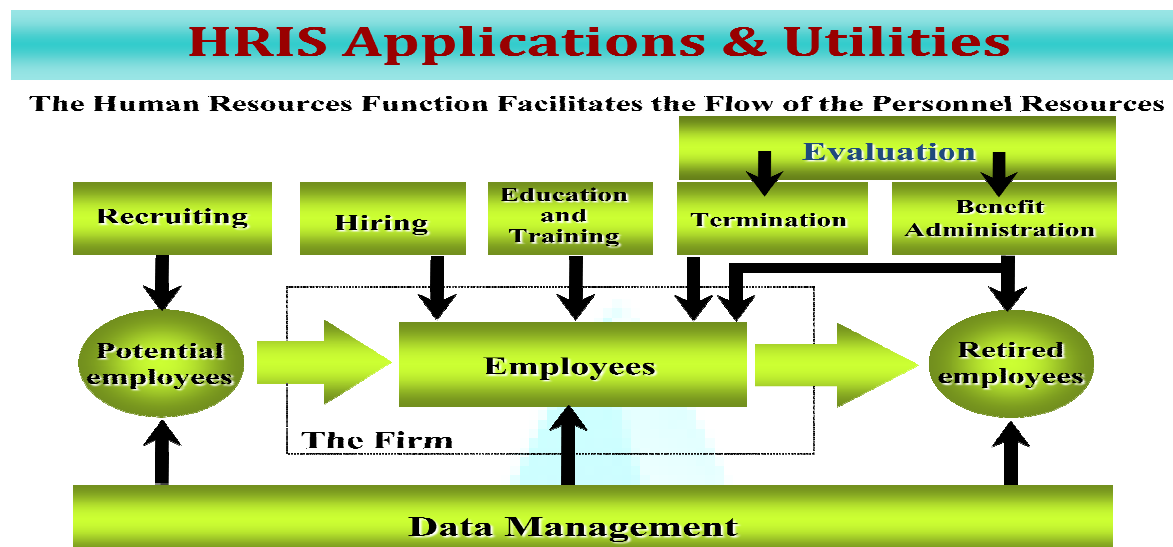
**THE HRIS DATABASE**

- Employee: 82.5% of the firms maintain only employee data
- Non- Employee: Only 8% of the firms maintain the data of external organization

These HRIS database is used by executives, non – HR managers, hr managers, hr directors on monthly and weekly basis. As with the help of the data and information they are able to take necessary decisions for the company benefit.

HRIS output information can be in the form of periodic reports, database queries, mathematical form, expert system. So it helps in taking various decisions at middle and senior level management. It also make things easier as it furnishes information in various forms and hence can be utilized in accordance with the prevailing situation regarding which the decision has to be taken

FIG. 1



5

### PERSONAL RECORDS

Tracking employee data is one of the central features of an HRIS. By centralizing information that may currently exist in multiple locations, an HRIS can give you a more complete overview of your HR picture and reduce administrative overhead. It will encompass information about each employee, such as name, address, personal details etc.

### BENEFITS MANAGEMENT

Employees place enormous value on benefits like health insurance, vacation time, and retirement plans. The correct HRIS will help reduce the amount of staff time spent on enrollment forms, changes, and even simple requests like "how much vacation time do I have left?"

### FEATURES TO LOOK FOR

- **Covers all your benefits:** parenting leaves, flexible schedules, community service time, 401k or other retirement plans, health, dental, and vision insurance, and flexible spending or dependent care accounts
- **Connects to external systems:** can establish direct connections with your **health insurance**, and other benefit providers

### TERMINATIONS

How long was Mr. X in our service? Why did he leave the company? What did he contribute to the Pension Scheme?

- On termination of an employee's service the HRIS system allows for relevant details to be checked and recorded.
- Payroll Details include: outstanding loan balances, leave balances, service period information and salary information.
- Personnel Details include: outstanding items issued to the employee such as cell phones or laptops, details of training sessions planned for the employee and the recording of the exit interview conducted with the employee.

### PAYROLL

Payroll is often the first aspect of HR to be automated, usually when a company outsources the job to a payroll service provider. Computerized payroll systems can drastically reduce the time your staff spends on payroll work and cut down on errors.

This can save some steps: if all your data is in one system, you can cut down on data exports and re-keying. It contains all the information regarding the pay scale of different employees falling under different grades.

### TIME AND ATTENDANCE REPORTING

Either integrates with your existing time tracking system, or provides all the attendance tracking features you need. It gives all the details regarding the punctuality and attendance of the employees in the company.

### HRIS TIME CLOCK CENTER

The empire payroll HRIS System comes with a basic time clock function which is accessed via PC and/or the Internet. Empire payroll offers several other time & attendance systems including biometric as well as basic punch clocks.

### RECRUITMENT AND SELECTION

HRIS provides for short-listing, search, and easy retrieval of resumes. This module is capable of processing large volumes of resumes and can also support resumes in many different formats. Status tracking and history record of every candidate / resume in the system will be available to HR professionals, at the click of a button. It helps in selecting right candidate for the right job. It shows all the information about the applicant which ultimately helps in selecting the right candidate. It helps in viewing the selected person which is best suited for a particular job.

### EMPLOYEE TURNOVER

HRIS furnishes information regarding employee's turnover. It tells us how many employees have left the company and how much new recruitments are there. It helps in calculating employee turnover ratios.

## PERFORMANCE APPRAISAL

Employees are the most valuable and dynamic assets of an organization. Performance Appraisals Management System (IPMS) is an extensive and comprehensive system that maintains and tracks information pertaining to the performance appraisals in an organization.

The system captures information related to eligibility criteria, appraisal groups or categories, multiple appraisal cycles, Key Result Areas (KRAs), workflow driven performance appraisals process with electronic protection. The appraisal process begins with Appraisal Cycle Initiation, Definition of KRAs by the Appraiser, Self Rating by the Appraisee, Rating by the Appraisers, Overall rating and Normalization. The system supports 360 degree paradigm for Performance Appraisal Review. HRIS formalizes and automates your review process, including self, peer, and manager reviews and all approvals

## HRIS – BENEFITS

The various benefits of HRIS which a company can obtain can be summarized as below:-

- Higher speed of retrieval and processing of data.
- Reduction in duplication of efforts leading to reduced cost.
- Ease in classifying and reclassifying the data.
- Better analysis leading to more effective decision making.
- Higher accuracy of information/report generated.
- Fast response to answer queries.
- Improved quality of reports.
- Better work culture.
- Establishing of streamlined and systematic procedure.
- More transparency in the system.
- Employee – Self Management.

The importances of info system in HR processes are as follows:-

- Better safety
- Better service
- Competitive advantage
- Fewer errors
- Greater accuracy
- Higher quality products
- Improved health care
- Improved communication
- Increased efficiency
- Increased Productivity
- More efficient administration
- More opportunities
- Reduced labor requirements
- Reduced costs
- Superior managerial decision making
- Superior control

## HRIS – DISADVANTAGES

Besides having lot of advantages the HRIS system has also have certain disadvantages which can be summarized below:-

- Unclear goals/objectives
- Management – unrealistic expectations
- System solves the wrong problem
- Lack of overall plan for record management
- Improper vendor/product selection
- Lack of flexibility and adaptability
- Lower user involvement
- Misinterpret HR specifications
- Planning overlooks impact on clerical procedures
- Lack of HR/functional expertise in designing
- Poor communication between HR/IS
- Underestimate conversion efforts
- Inadequate testing

## HRIS SOFTWARE: SOME OF THE HRIS SOFTWARE ARE SUMMARIZED BELOW

- **Abra Suite** for human resources and payroll management
- **ABS (Atlas Business Solutions)** for general information, wages information, emergency information, reminders, evaluators, notes customer information, documents and photos, separation information.
- **CORT-HRMS** for applicant tracking, attendance tracking and calendars, wage information, skills tracking, reports to information, status tracking, Job history tracking, cost center tracking, reviews and tracking, mass update and change tools etc.
- **HRSOFT** for Identifying and track senior managers, assess management skills and talents, generate a wide range of reports, resumes, employee profiles, replacement tables and succession analysis reports, Identify individuals for promotion, skills shortages, unexpected vacancy, discover talent deep, competency management, career development, align succession plans etc.
- **Human Resource Micro Systems** for sophisticated data collection and reporting, flexible spending accounts, compensation, employment history, time off, EEO, qualifications, applicant/requisition tracking, position control/succession planning, training administration, organization charts, HRIS-Pro Net (employee/managerial self-service), HR Automation (e-Notification and e-Scheduler), and performance pro (performance management)
- **ORACLE- HRMS** for Oracle recruitment, Oracle self-service human resources, payroll, HR Intelligence, Oracle learning management, Oracle time and labor
- **VANTAGE-HRA** 'Point-and-Click' report writing, internal messaging system for leaving reminders to yourself, to someone else or to everyone using HRA - very useful for Benefit Applications, disciplinary actions, special events, employee summary screen for basic, leave (Absenteeism) and salary/position history, skills & training module, leave tracking module
- **Simple HR** one of the least expensive HR products available, simple HR lets companies store basic information about employees' salary, benefits, performance reviews, vacation use, safety incidents, etc. Different versions are available (with different prices), depending on how many employees the company has.

- **People-Track HR** priced at a one-time fee of \$20 per employee, People-Track is one of the more flexible offerings. Other versions are available that add features for additional costs.
- **EmpXTrack Starter Edition** EmpXTrack combines payroll software with an employee database, featuring a self-service option that lets employees keep their own information up-to-date. Pricier editions add tools for performance evaluations, surveys and recruiting.
- **Microsoft Dynamics NAV and GP** for some smaller companies, these offerings from Microsoft could be overkill, but they might be worth the investment for employers with robust growth who already rely heavily on Microsoft products

## CONCLUSION

A HRIS facilitates communication processes and saves paper by providing an easily-accessible, centralized location for company policies, announcements, and links to external URL's. Employee activities such as time-off requests and W-4 form changes can be automated, resulting in faster approvals and less paperwork. An affordable Human Resource Information System (HRIS )capabilities, allows companies to manage their workforce through two powerful main components: HR & Payroll. In addition to these essential software solutions, HRIS offers other options to help companies understand and fully utilize their workforce's collective skills, talents, and experiences.

Some of the most popular modules are:

Organization charts,(Create professional looking, dynamic organization charts),Employee self service (Employees can update personal information and view benefits elections, absence transactions, time-off balances and payroll information),Benefits Administration (Save paper and postage, take weeks off the benefits open enrollment period, reduce administration time, and improve data accuracy, Track training for employees. Selecting the right HRIS is important. Your company will need to make sure that they can customize the system to meet its specific and unique needs and that it is a system that will grow with your company.

## REFERENCES

### BOOKS

1. Developing Human Resource Information System - By Ashok Kumar Gupta
2. Handbook of Human Resource Information Systems- By Alfred J Walker
3. Human Resource Information Systems - By P K Gupta, & Susheel Chhabra

### WEBSITES

4. [www.best-software.com](http://www.best-software.com)
5. [www.businessballs.com](http://www.businessballs.com)
6. [www.citehr.com](http://www.citehr.com)
7. [www.en.wikipedia.com](http://www.en.wikipedia.com)
8. [www.hr.com/](http://www.hr.com/)
9. [www.hrdimensions.com](http://www.hrdimensions.com)
10. [www.hrfiles.com](http://www.hrfiles.com)
11. [www.hrgopher.com](http://www.hrgopher.com)
12. [www.hrguru.com/](http://www.hrguru.com/)
13. [www.hrms.com](http://www.hrms.com)
14. [www.payrollandhr.com](http://www.payrollandhr.com)
15. [www.rinfra.com](http://www.rinfra.com)

# THE EFFECTS OF CORPORATE GOVERNANCE ON COMPANY PERFORMANCE: EVIDENCE FROM SRI LANKAN FINANCIAL SERVICES INDUSTRY

RAVIVATHANI THURAISSINGAM

ASST. LECTURER

DEPARTMENT OF FINANCIAL MANAGEMENT

FACULTY OF MANAGEMENT STUDIES & COMMERCE

UNIVERSITY OF JAFFNA

JAFFNA

## ABSTRACT

*Main purpose of the study is to identify the relationship between corporate governance and company performance of financial service industry of Sri Lanka from financial year 2008-2011. There were 33 banks, finance and insurance organizations listed in the CSE as at 1st April 2007. 20 of these organizations have been selected randomly as the sample of the study. The governance variables and performance variables are tested under Simple Linear Regression model to identify any relationships. The three variables related to Corporate Governance are included in this study (Board size, board composition and Audit Committee) while performance of the firms is measured by return on assets (ROA) and return on equity (ROE). The study however could not provide a significant relationship between the two performance measures and corporate governance. These results are consistent with prior empirical study.*

## KEYWORDS

Corporate Governance, company performance, financial service industry, Sri Lanka.

## INTRODUCTION

Corporate governance has become a popular discussion topic in developed and developing countries. The widely held view that corporate governance determines firm performance and protects the interests of shareholders has led to increasing global attention. However, the way in which corporate governance is organized differs between countries, depending on the economic, political and social contexts.

Corporate Governance refers to the way an organization is directed, administrated or controlled. It includes the set of rules and regulations that affect the manager's decision and contribute to the way company is perceived by the current and potential stakeholders. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation such as; boards, managers, shareholders and other stakeholders and spells out the rules and procedures and also decision making assistance on corporate affairs. By doing this, it also provides the structure through which the company's objectives are set and the means of obtaining those objectives and monitoring performance. Corporate governance may be the ways of bringing the interests of investors and managers into line and ensuring that firms are run for the benefit of investors.

According to OECD principles corporate governance is a system by which business corporations are directed and controlled. The corporate governance structures specify the distribution of rights and responsibilities among different participants in the corporation, such as the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance (OECD 1999).

Internationally there is a growing recognition of the importance of corporate governance for the success of a firm. Several countries have issued guidelines and recommendations for best governance practices. However, whether firms following the best practice recommendations regarding Corporate Governance will indeed perform better is a question to be examined empirically in Sri Lankan context. Sri Lankan listed firms have to follow a set of guidelines with respect to CG practices. Even though these are not binding on firms, compliance is expected at least by firms listed in the stock exchange. Since the sample of the firms chosen for the current study comes from Sri Lanka, it provides opportunity to examine linkage between Corporate Governance and firm performance in Sri Lankan context.

In Sri Lanka, the Financial Services Industry also plays a considerable role in the economic development and business improvement. The Financial Services Industry has become increasingly competitive over the past few decades and many of Financial Services organizations have invested heavily in infrastructure, technology process and agriculture, etc in this country. Therefore the financial performances of the Financial Services Industry are also very important to Financial Services organizations and country.

According to Cadbury (1992), corporate governance is the mechanism used to discipline organizations. Morin and Jarrell (2001) argue that corporate governance mechanism is a framework that controls and safeguards the interest of the relevant players in the market which include managers, employees, customers, shareholders, executive management, suppliers and the board of directors.

## LITERATURE REVIEW

Several studies have been conducted so far and still going on to examine the relationship between firm performance and corporate governance mechanisms, but the results are mixed.

It is widely acclaimed that good corporate governance enhances a firm's performance (Brickley et al, 1994; Brickley and James, 1987; Byrd and Hickman, 1992; Chung et al, 2003; Hossain et al, 2000; Lee et al, 1992; Rosenstein and Wyatt, 1990; Weisbach, 1988). In spite of the generally accepted notion that effective corporate governance enhances firm performance, other studies have reported negative relationship between corporate governance and firm performance (Bathala and Rao, 1995; Hutchinson, 2002) or have not found any relationship (Prevost et al. 2002; Young, 2003).

Yermack (1996) examines the relation between board size and firm performance, concluding that the smaller the board sizes the better the performance, and proposing an optimal board size of ten or fewer. John and Senbet (1998) maintain that the findings of Yermack have important implications, not least because they may call for the need to depend on forces outside the market system in order to determine the size of the board.

Hence, as board size increases board activity is expected to increase to compensate for increasing process losses (Vafeas, 1999). The argument is that large boards are less effective and are easier for a CEO to control. The cost of coordination and processing problems is also high in large boards and this makes decision-taking difficult. On the other hand, smaller boards reduce the possibility of free-riding and therefore have the tendency of enhancing firm performance. Keeping boards small can help improve their performance. When board gets beyond seven or eight people they are less likely to function effectively and are easier for the CEO to control (Jensen 1993). In contrast, research in the area suggests that as groups increase in size, they become less effective because of coordination and process problems outweighing the advantages gained from having people of diverse background (Steiner, 1972).

Empirical evidence regarding the relationship between firm performance and board composition is mixed. Baysinger and Butler (1985) found that firms with higher numbers of outside directors on the board had a greater return on equity than the board with inside directors. Ezzamel and Watson (1993) also found that outside directors were positively associated with profitability among a sample of UK firms. Hermalin and Weisbach (1991) and Bhagat and Black (2002) find no correlation between the degree of board independence and four measures of firm performance, 20 European Journal of Economics, Finance and Administrative Sciences - Issue 14 (2008) controlling for a variety of other governance variables, including ownership characteristics, firm and board size and industry. They find that poorly performing firms were more likely to increase the independence of their board.

The outside directors are in a position to exert an intensive influence on the management because they are independent financially and is of different self interest than the inside directors hence are in a position to protect the interest of the shareholders than the inside directors (Fama, 1980). On the other hand, studies by Klein (1998), Bhagat et al (1997), and Hermalin et al (1991) experienced a high proportion of independent directors does not predict a better future accounting performance.

The Cadbury committee (Cadbury 1992) also recommends that the ideal size of the board should be between eight and ten members and that there had to be one executive director for every non-executive director. Hermalin and Weisbach (1991) find no association between the proportion of outside directors and Tobin's Q and Bhagat and Black (2002) find no linkage between the proportion of outside directors and Tobin's Q, return on assets, asset turnover and stock returns.

Velnampy (2013), analyzing publicly traded SriLankan manufacturing companies find that determinants of corporate governance are not correlated to the performance measures of the organization. Regression model showed that corporate governance don't affect companies' ROE and ROA. This result was supported by Achchuthan that, there is no significant mean different between the firm performance among corporate governance as board leadership structure, board committees practices, board meetings and proportion of non executive directors.

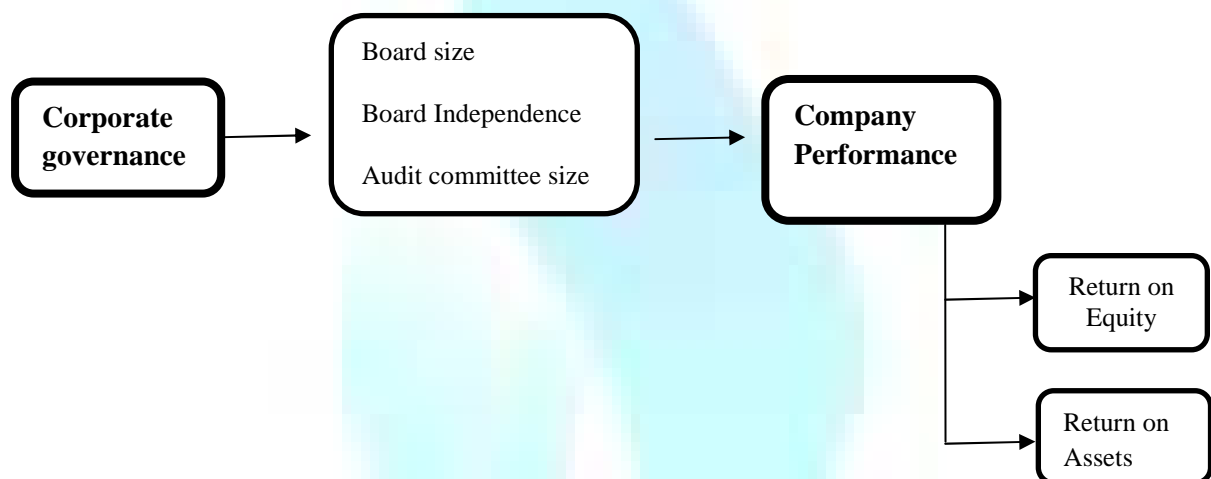
Zhaoyang Guo and Udaya Kumara Kgab(2012), state that, (i) board size and proportion of non- executive directors in the board shows a marginal negative relationship with firm value, (ii) proportion of non-executive directors in a board and financial performance of firm shows negative relation contrary to the findings of previous studies. The firm size and director shareholdings have a significant impact on firm performance of listed firms in Sri Lanka.

Kumi Heenetigala and Anona Fern Armstrong (2011), Suggest a positive relationship between governance practices (separate leadership, board composition, board committee and firm performance) based on return on equity, and board composition, board committees and performance measured by Tobin's Q. These relationships indicate that firms have implemented corporate governance strategies, which have resulted in higher profitability and share price performance.

The present paper aims to improve the literature on the corporate governance - company performance linkage by providing an analysis of the Sri Lankan financial service industry for four years (2008-2011) and analyzing board of directors attributes.

## RESEARCH MODEL

Based on a review of the relevant literature, this research investigates corporate governance practices and firm performance in a particular business environment. A conceptual framework developed in this section provides a framework to understand the affects of the variables on firm performance, and identifies the hypotheses regarding the relationship of corporate governance variables to firm performance in Sri Lanka.



## OBJECTIVES

- Investigate the extent to which the companies have adopted corporate governance practices.
- Determine the relationships between corporate governance practices (such as Board, Audit Committee) on firm performance

## HYPOTHESIS

- [1] There is a positive relationship between corporate governance and ROE
- [2] There is a positive relationship between corporate governance and ROA

## SAMPLE SELECTION

There were thirty nine banks, finance and insurance organizations listed in the CSE as at 10th January 2010. As per the scope of the study researcher has selected these organizations listed in the CSE as the population. Twenty of these organizations have been selected randomly as the sample of the study.

## PERIOD OF THE STUDY

The study examined the data for the years 2008 to 2011. The reason for selection of the years was that the corporate governance guidelines were introduced in 2003. Four years later, 2007, was a suitable time period, in which companies who had adopted the practices could have been expected to show some change in adoption of the practices and if this had had an impact on company performance. Reporting of corporate governance practices was voluntary during this period. The code of corporate governance was mandated in 2007 to be effective for companies reporting on or after the 1<sup>st</sup> April 2008. Therefore, the year 2007 was an important year to examine the effectiveness of the voluntary code on performance.

## DATA COLLECTION

The data and information required for the study were collected from the Colombo Stock Exchange (CSE) websites, annual reports, and the Colombo Stock Exchange publication "The Hand book of listed companies".. Evidence required to test the hypotheses in this study is based on annual reports and published statistics. Therefore data derived for this study is from secondary sources.

## METHODS OF DATA ANALYSIS

SPSS (Statistical Package for Social Science) was used to analysis the data to test the hypothesis. The suitable tools were used to test the hypothesis and find the reliability. Following techniques are used to validate the findings and to get best solution. Correlation analysis is used to identify the strength or weakness of

relationship between corporate governance practices on firm performance. Regression analysis is used to identify how corporate governance practices effect on firm performance and as well as other factors extends.

## VARIABLES DESCRIPTION

Described below are the variables used to operationalise the constructs. They include the corporate governance variables (board size, board composition and audit committees) and company performance.

Concept	variable	Measurement
Company Performance	<b>Dependent variable</b>	
	Return on Equity[ROE]	Earnings before interest and tax Total equity shares in issue
	Return on assets [ROA]	Earnings before interest and tax Total asset
Corporate Governance Characteristics	<b>Independent variable</b>	
	Board size	Number of directors on the board.
	Board composition	Proportion of outside directors sitting on the board.
	Size of audit committee	Number of members of audit committee

## MODEL

The following conceptual model was formulated through the extensive literature.

$$ROE = \beta_0 + \beta_1 BSIZE + \beta_2 BCOM + \beta_3 ASIZE + \epsilon$$

$$ROA = \beta_0 + \beta_1 BSIZE + \beta_2 BCOM + \beta_3 ASIZE + \epsilon$$

It is important to note that the ROA and ROE depend upon BSIZE, BCOM and AUSIZE.

Whereas:

$\beta$ =Intercept

ROA= Return on Assets.

ROE= Return on Equity

BSIZE= Board size

BCOM= Board composition

ASIZE= Size of audit committee

$\epsilon$  = Standard error of the sample

## EMPIRICAL RESULTS AND DISCUSSION

### DESCRIPTIVE STATISTICS

Table 1 below shows the descriptive statistics of all the variables used in this study. Descriptive statistics were carried out to obtain sample characteristics.

TABLE 1: DESCRIPTIVE STATISTICS FOR THE WHOLE SAMPLE

	Range	Minimum	Maximum	Mean	Std. Deviation
Board size	9	5	14	8.83	1.999
Board composition	7	3	10	6.79	1.921
Audit committee size	3	2	5	3.08	.759
Return on Equity	6.3747	-3.6235	2.7511	.136022	.6839601
Return on Assets	.5866	-.3875	.1991	.019596	.0881506

The above descriptive statistics shows the number of directors in the board have a wide range from 5 to 14. The mean of the size of the board is 8.83, with a standard deviation of 1.999. This is in par with many studies undertaken previously. The Cadbury Committee report (1992) also recommends the size of the board to be between 8 and 10 members. It can be noted from Table 1 that the proportion of the number of non executive directors sitting on the board is about 6.79. This indicates that from the board size approximately 70% of them are non-executive directors. Considering the composition of the audit committee, the number of members floats from 2to 5directors.

## RESULTS OF PEARSON CORRELATION ANALYSIS

Table 4.2 presents the Pearson correlation coefficients between dependent variables and independent variables to find out the relationship between determinants of corporate governance and the measures of firm performance.

TABLE 2: CORRELATION MATRIX

		Correlations				
		Board size	Board composition	Audit committee	Return on Equity	Return on Assets
Board size	Pearson Correlation	1	.762**	.559**	.134	-.026
	Sig. (2-tailed)		.000	.000	.235	.816
	N	80	80	80	80	80
Board composition	Pearson Correlation	.762**	1	.601**	.105	.076
	Sig. (2-tailed)	.000		.000	.355	.502
	N	80	80	80	80	80
Audit committee	Pearson Correlation	.559**	.601**	1	.223*	.059
	Sig. (2-tailed)	.000	.000		.047	.605
	N	80	80	80	80	80
Return on Equity	Pearson Correlation	.134	.105	.223*	1	.161
	Sig. (2-tailed)	.235	.355	.047		.154
	N	80	80	80	80	80
Return on Assets	Pearson Correlation	-.026	.076	.059	.161	1
	Sig. (2-tailed)	.816	.502	.605	.154	
	N	80	80	80	80	80

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

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

The results of the correlation analysis in table 02 show that the determinants of corporate governance such as board size, board composition are not significantly correlated with ROE and ROA as the measures of firm performance. But there is a significant relationship between Audit committee and ROE at 0.05 levels. But there is no significant relationship between Audit committee and ROA.

### REGRESSION ANALYSIS

A simple linear regression was carried out to recognize the impact of corporate governance on firm performance. Table 3 shows the results of the analysis.

**TABLE 3: MODEL SUMMARY**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.231(a)	.053	.016	.6785275
1	.157(b)	.025	-.014	.0887626

a & b Predictors: (Constant), Audit committee size, Board size, Board composition

a. Dependent Variable: Return on Equity

b. Dependent Variable: Return on Assets

The specification of the three variables in the model revealed the ability to predict performance. R<sup>2</sup> Value of 0.053 and 0.025 which are in the models denote that 5.3%, and 2.5% of the observed variability in performance can be explained by the differences in both the independent variables namely board size, board composition, and audit committee. But, remaining percentage of variance is attributed to other factors. R<sup>2</sup> values indicate that there may be number of variables which can have an impact on performance that need to be studied.

Tables 4a and 4b show the analysis of variance (ANOVA) of the variables. With F- values of 0.638 and 1.423 for ROA and ROE as performance proxies respectively, it clearly shows that there is no relationship between corporate governance and firm performance.

**TABLE 4a: ANOVA- ROA AS A DEPENDENT VARIABLE**

#### ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.015	3	.005	.638	.593 <sup>a</sup>
	Residual	.599	76	.008		
	Total	.614	79			

a. Predictors: (Constant), Audit committee size, Board size, Board composition

b. Dependent Variable: Return on Assets

**TABLE 4b: ANOVA- ROE AS A DEPENDENT VARIABLE**

#### ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.966	3	.655	1.423	.243 <sup>a</sup>
	Residual	34.990	76	.460		
	Total	36.956	79			

a. Predictors: (Constant), Audit committee size, Board size, Board composition

b. Dependent Variable: Return on Equity

**TABLE 5: COEFFICIENTS FOR PREDICTORS OF PERFORMANCE**

Model	Unstandardized Coefficients				Standardized		t		Sig.	
	B		Std. Error		Beta					
Dependent Variable	ROE	ROA	ROE	ROA	ROE	ROA	ROE	ROA	ROE	ROA
(Constant)	-.517	.019	.376	.049			-1.376	.390	.173	.697
Board size	.025	-.009	.060	.008	.072	-.214	.412	-1.201	.681	.234
Board composition	-.034	.009	.065	.008	-.094	.207	-.518	1.117	.606	.267
Audit committee size	.215	.006	.128	.017	.239	.054	1.679	.375	.097	.709

The relationship between board size, board composition and audit committee and the two performance measures is not statistically significant. The implication of this is that for the sampled firms, there is no relationship between the firms' financial performances and corporate governance. Further t values for all four variables of corporate governance are insignificant event at 5% level. It means that these variables are not contributing to the performance measures of ROA and ROE. This outcome also has the support of Forsberg (1989), Weisbach (1991), Bhagat and Black (2002) and Velnampy (2013).

### CONCLUSION AND RECOMMENDATION

The present study analyzes the relationship between corporate governance of financial services industry and their performances. Using correlation and regression, we examine the effects of corporate governance and firm profitability in terms of ROE and ROA. The sample consists of 20 companies for the period 2008-2011. The results of the study provide evidence that the corporate governance measures are not significantly correlated with ROE and ROA as the performance measures. So that hypotheses one and two are rejected. The results suggested that future research should be carried out with a larger sample. Greater flexibility in acceptable governance structures may therefore be necessary if shareholder interests are to be promoted. Hence further research is significantly recommended.

## REFERENCES

1. Achchuthan, 2013, 'Corporate Governance practices and Firm Performance: Evidence from Sri Lanka', European Journal of Business and Management, ISSN 2222-1905 (Paper) ISSN 2222-2839, Vol.5, No.1.
2. Bathala, C T and Rao, R P (1995): "The Determinants of Board Composition: An Agency Theory Perspective", Managerial and Decision Economics, 16, 59-69.
3. Baysinger, B & Butler, H 1985, 'Corporate Governance and Board of Directors: Performance Effects of Changes in Board Composition', Journal of Law Economics and Organization, vol. 1, pp. 101-24.
4. Bhagat, S & Black, B 2002, 'The Non-Correlation Between Board Independence and Long-Term Firm performance', Journal of Corporate Law, vol. 27, no. 2, pp. 231-74.'
5. Bhagat, S & Black, B 2002, 'The Non-Correlation between Board Independence and Long-Term Firm performance', Journal of Corporate Law, vol. 27, no. 2, pp. 231-74.'
6. Brickley, J A and James, C M (1987): "The Takeover Market, Corporate Board composition, and Ownership Structure: The Case of Banking", Journal of Law and Economics, 30, 161-181.
7. Brickley, J A, Coles, J L and Terry, R L (1994): "Outside Directors and the Adoption of Poison Pills", Journal of Financial Economics, 35, 371-390.
8. Byrd, J W and Hickman, K A (1992): "Do outside Directors Monitor Managers: Evidence form Tender Offer Birds", Journal of Financial Economics, 32(2), 195-221.
9. Chung, K H, Wright, P and Kedia, B B (2003): "Corporate Governance and Market Valuation of Capital and R&D Investment", Review of Financial Economics, 12, 161-172.
10. Ezzamel, MA & Watson, R 1993, 'Organizational Form, Ownership Structure, and Corporate Performance: A Contextual Empirical Analysis of UK Companies', British Journal of Management, vol. 4, no. 3, pp. 161-76.
11. Fama, EF 1980, 'Agency Problem and the Theory of the Firm', Journal of Political Economy, vol. 88, no. 2, pp. 288-307.
12. Hermalin, Band Weisbach, M (1991). "The Effects of Board Composition and Direct Incentives on Firm Performance," Financial Management, 20(4), 101-112.
13. Hermalin, Band Weisbach, M (1991). "The Effects of Board Composition and Direct Incentives on Firm Performance," Financial Management, 20(4), 101-112.
14. Hossain, M, Cahan, S F and Adams, M B (2000): "The Investment Opportunity Set and the Voluntary Use of Outside Directors: New Zealand Evidence", Accounting and Business Research, 30(4), 263-273.
15. Hutchinson, M (2002): "An Analysis of the Association between Firms' Investment Opportunities, Board Composition, and Firm Performance", Asia Pacific Journal of Accounting and Economics, 9, 17-39.
16. Jensen, M C (1993): "The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems". Journal of Finance, 48(3), 832-880.
17. John, K and Senbet, L W (1998): "Corporate Governance and Board Effectiveness" Journal of Banking and Finance, 22, 371-403 [13].
18. Klein, A 1998, 'Firm Performance and Board Committee Structure', Journal of Law and Economics, vol. 41, pp. 275-99.
19. Kumi Heenetigala, Anona Fern Armstrong, 2011, 'the impact of corporate governance on firm performance in an unstable economic and political environment: evidence from Sri Lanka' Financial Markets & Corporate Governance Conference .
20. Prevost, A K, Rao, R P and Hossain, M (2002): "Determinants of Board Composition in New Zealand: A Simultaneous Equation Approach", Journal of Empirical Finance, 9, 373-397.
21. Rosenstein, S & Wyatt, JG 1990, 'Outside Directors, Board Independence, and Shareholder Wealth', Journal of Financial Economics, vol. 26, no. 2, pp. 175-91.
22. Steiner, I D (1972): Group Process and Productivity. Academic Press, New York.
23. Vafeas, N (1999): "Board Meeting Frequency and Firm Performance", Journal of Financial Economics, 53, 113-142
24. Velampy.T, 2013, 'Corporate Governance and Firm Performance: A Study of Sri Lankan Manufacturing Companies', journal of economics and sustainable development, Vol 4, No 3.
25. Weisbach, MS 1988, 'Outside Directors and CEO Turnover', Journal of Financial Economics, vol. 20, no. 1-2, pp. 431-60.
26. Yarmack, D 1996, 'Higher Market Value of Companies with a Small Board of Directors', Journal of Financial Economics, vol. 40, pp. 185-212.
27. Young, B (2003): "Corporate Governance and Firm Performance: Is there a Relationship?", Ivey Business Journal Online, 1-4.
28. Zhaoyang Guo,Udaya, Kumara Kga, 2012, 'Corporate Governance and Firm Performance of Listed Firms in Sri Lanka'. Procedia - Social and Behavioral SciencesVolume 40, Pages 664-667

## A STUDY ON FINANCIAL HEALTH OF TEXTILE INDUSTRY IN INDIA: Z – SCORE APPROACH

SANJAY S. JOSHI

TEACHING ASST.

DEPARTMENT OF MANAGEMENT

SHRIMAD RAJCHANDRA INSTITUTE OF MANAGEMENT &amp; COMPUTER APPLICATION

MALIBA CAMPUS

UKA TARSADIA UNIVERSITY

TARSADI

## ABSTRACT

Corporate failures are impacting at larger extent to various stakeholders such as investor, government, economy of the country and many more. So this paper examines the financial health of textile industry in India through Z – score model which better predicts the corporate failures (Edward I. Altman 1968). The objectives of the study are to examine the financial health of textile industry through Z – score model and also Analysis of Variance (ANOVA) is used to compare the mean value of Z score for the studied groups. In case of violation of the assumption of ANOVA, none parametric test: Kruskal Wallis statistics used. Moreover, the study period is of 5 years ranging from 2007-08 to 2011-12 because researcher is interested in measuring the performance after global financial crisis. The research result shows that Page Industries Ltd and Zodiac Clothing Co. Ltd are performing much better in whole textile industry. On the contrary, all other textile and synthetic producing companies' financial performance is weak.

## JEL CODE

G 33

## KEYWORDS

Analysis of Variance, Discriminant Analysis, Financial Health, Z – Score Model.

## INTRODUCTION

The importance of financial management practices have excelled in every area of business. The success of any business is largely depends on its effective financial management practices which starts with procurement of funds and ends with effective utilization of funds. However, financial statements like balance sheet and profit & loss account are the sources for financial information, based on which the financial planning and decision making is done. But absolute figures reported in the financial statements do not serve the purpose of measuring the financial health of the companies. Hence, the financial analyst has to analyze the financial data in order to ascertain the strengths and weaknesses of the companies. Business failure may leads to corporate distress which includes legal process of bankruptcy and liquidation. The business failure received much exposure in last decades, more during the recession years of 2007 to 2010, heightened attention during the explosion of defaults and large firm bankruptcies in the year 2006-07.

Looking to this global financial crisis, the present study examines the financial health of textile industry in India. The Indian Textiles Industry has an overwhelming presence in the economic life of the country. Apart from providing one of the basic necessities of life, the textiles industry also plays a pivotal role in its contribution to industrial output, employment generation, and the export earnings of the country. Currently, it contributes about 14% to industrial production, 4% to the GDP, and 17% to the country's export earnings (Source: Ministry of textiles report 2012). However, in last few years textile industry reported downward contribution to growth i.e. 14.5% in 2009, 3.8 in 2010 and -3.9 in 2011 (Source: MOSPI). So researcher tries to examine the financial health of textile industry after global financial crisis periods. Despite the financial analyst had many tools, ratio analysis is most powerful tool to ascertain the financial health of the companies. Alone, a single ratio does not serve the purpose. Therefore, it is necessary to combine the different ratios into a single measure to assess the distress level. However, Discriminant analysis is useful tool in such situations. "The use of MDA helps to consolidate the effect of all ratios". The analysis was carried out by Edward I. Altman in the year 1968 and created formula based model called Z – Score model. The model used to predict the probability that the firm will go into bankruptcy within two years and also used to predict corporate defaults and control measure for the financial distress status of the companies. The model was created with an initial dataset of 66 US manufacturing companies (33 non-bankrupt firms and 33 bankrupt firms) using Multiple Discriminant Analysis (MDA).

This statistical method distinguishes two or more classes of objects (in this case bankrupt and non-bankrupt organizations) by making a linear combination of attributes of each class. The input for the model requires only publicly available data from annual reports. The main equation to predict bankruptcy is

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

(1)

Where,

Z	= Z score (Zone of Discrimination)
X <sub>1</sub>	= Working Capital/Total Assets
X <sub>2</sub>	= Retained Earnings/Total Assets
X <sub>3</sub>	= EBIT/Total Assets
X <sub>4</sub>	= Market Value of Equity/Book Value of Total Liabilities
X <sub>5</sub>	= Sales/Total Assets

Moreover, the overall Z score discriminates firms that are likely to go bankrupt. Those firms can be identified by using a cutoff score for overall Z score index.

Z < 1.81	High probability of bankruptcy for the firm ("Distress Zone")
1.81 < Z < 2.99	Gray area – uncertain ("Gray Zone")
2.99 < Z	Low probability of bankruptcy for the firm ("Safe Zone")

## REVIEW OF LITERATURE

The detection of companies operating and financial difficulties is the subject which has been particularly amenable to analysis with financial ratios. Though at one extreme, many learned academicians question the validity of financial distress prediction models using financial ratios. However, there is continuing interest in refining and testing financial distress prediction models. Few of studies conducted in line of this research as under.

Beaver (1967, 1968) initiated the interest of academic world to financial distress prediction models using univariate analysis methodology for classifying bankruptcy and non-bankruptcy firms. The importance of the subject attracted the interest of several authors from countries. Edward I. Altman (September 1968) published a paper and introduced the world to Altman's Z score, a technique designed to predict bankruptcy. However, The Discriminant ratio model proved to be extremely accurate in predicting bankruptcy correctly in 94% of the initial sample with 95% of all firms in the bankrupt and non-bankrupt groups assigned to their actual group classification.

Edward I. Altman, Haldeman and Narayanan (1997) came out with ZETA model for assessing bankruptcy risk of corporations demonstrates improved accuracy over existing failure classification model (Z-Score) and, perhaps more importantly, is based on data more relevant to current conditions and to a larger number of industrial firms. Further Z score model has been tested by other researcher in their countries. Nikolaos Gerantonis, Konstantinos Vergos, (October 2009), have analyzed whether Altman Z-score models, can predict correctly company failures. They have also concluded that Altman model performs well in predicting failures. Bright Kpodoh (2009) has adopted qualitative as well as quantitative approach to measure the financial performance, and relationship between corporate governance and corporate failure. The research findings confirmed the strength and ability of the Z score model in predicting eminent business failure as it predicted accurately the distress positions of the case companies. Dr. D. Maheswara Reddy and Dr. C. R. Reddy (2011), the attempt is made to predict the financial health of two selected sample pharmacy companies using modified Altman's model. The research findings of the study are that the overall financial health of both companies was good. Further a case study by Dr. M. Selvam W, S. Vanitha and M. Babu to predict financial health of Indian cements Ltd using Z score. Most of the cement producing companies in India has been caught in a vicious down cycle facing a threat to their viability.

## IMPORTANCE OF THE STUDY

Measuring financial strength of the corporate is very crucial for everyone in general and for investor in particular. Increasing globalization and liberalization led every country to an integrated market whereby every country's trade relation has increased drastically. However, in India, textile industry was unorganized sector prior to 1990s. After economic liberalization, it led to stupendous growth. Thus investor who seeks for healthy return out of textile industry, they need to study the fundamentals of the textiles companies. However, this research is also examined financial health of the textile companies through Z score model which predicts the corporate failure in near future.

## STATEMENT OF PROBLEM

Looking to the last 3 years performance of the textile industry, the growth rate was 6.8 in the year 2009 which was drastically reduced to -2.7 in the year 2011 (Source: economic survey report 2011-12). So the problem is which company is outperforming in this meltdown in textile industry? And further which companies' financial performance is distressed?

## OBJECTIVES

1. To measure the financial health and predict the bankruptcy of textile industry in India.
2. To analyze whether the average financial performance is significantly differing across the studied groups

## HYPOTHESES

Hypothesis - 1: Whether data follows normal distributions

Hypothesis- 2: Whether there exists significant difference among the mean value of Z score of all Textile Companies

## RESEARCH METHODOLOGY

Z score model and ANOVA was used to predict the bankruptcy and financial health of textile industry in India and also to check mean differences of various Z score and Z score components among the groups. The study examines the financial health of 8 textile products (Alok Industries Ltd., Arvind Ltd., Bombay Rayon, Himatsingka Seide Ltd., Page Industries Ltd., Raymond Ltd., S. Kumar Ltd., Zodiac Clothing Ltd.) and 5 textile synthetics (Bombay dyeing Ltd., Century Enka Ltd., Garden Silk Mills Ltd., Indo Rama Synthetics Ltd., SRF Ltd.) companies through Z score model which predicts the bankruptcy or corporate failures in next two years. The necessary secondary data have been sourced from annual reports of the firm, journals, books and websites from 2007-08 to 2011-12 (After Global Financial Crisis) for five years. The sample companies are drawn from S&P CNX Nifty500 index. All those data are subjected to find out Z score value to discriminate all studied companies as safe zone, gray zone and distress zone. Moreover, Analysis of Variance (ANOVA) was used to compare the mean differences among the groups.

## RESULTS AND DISCUSSION

The study examines the financial health of textile companies using Multiple Discriminant Analysis Z score model and also test mean differences among the group using ANOVA (in case of violation of Assumptions, Kruskal Wallis is used). The calculations of Z score for each textile companies are discussed in detail as follows.

**TABLE1: Z SCORE CALCULATIONS FOR ALOKTEXT, ARVIND AND BRFL**

Alok Industries Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.3480	0.0046	0.1606	0.1097	0.6772	1.6971
2010-11	0.3212	0.0238	0.1418	0.1368	0.5276	1.4965
2009-10	0.3430	0.0123	0.1161	0.1558	0.4005	1.3060
2008-09	0.2251	0.0146	0.0934	0.0300	0.3748	0.9916
2007-08	0.3735	0.0229	0.0722	0.1474	0.3258	1.1328
Arvind Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.2313	0.1127	0.1383	0.5790	0.9692	2.2085
2010-11	0.3200	0.0374	0.1065	0.4879	0.7388	1.8193
2009-10	0.3116	0.0156	0.0940	0.2379	0.7046	1.5534
2008-09	0.3057	-0.0154	0.0800	0.0912	0.7295	1.3934
2007-08	0.3219	0.0074	0.0685	0.2470	0.6628	1.4337
Bombay Rayon Fashions Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.3653	0.0332	0.1178	0.5402	0.4404	1.6380
2010-11	0.3566	0.0357	0.0933	0.5694	0.3891	1.5167
2009-10	0.3379	0.0361	0.0882	0.5489	0.3662	1.4426
2008-09	0.3441	0.0463	0.1147	0.3528	0.4621	1.5299
2007-08	0.4410	0.0847	0.1604	1.3852	0.7029	2.7111

Source: Calculated from Annual Reports of Respective Companies

The above table number 1 clearly represents the Z score and Z score components calculated values for Alok Industries, Arvind Ltd and BRFL. As such, all above companies' average Z score value is 1.3248, 1.6817 and 1.7677 respectively. That means if we discriminate these three companies using cut off for overall index, we can say that all three companies found to be in distress zone. Moreover, these companies' financial health is not healthier and has high probability of getting bankrupt in future.

TABLE 2: Z SCORE CALCULATIONS FOR HIMATSEIDE, PAGEIND AND RAYMOND

Himatsingka Seide Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.1247	0.0168	0.1072	0.3329	0.7274	1.4542
2010-11	0.2336	-0.0412	0.0214	0.3268	0.5001	0.9892
2009-10	0.2617	0.0053	0.0492	0.3654	0.4232	1.1261
2008-09	0.2409	-0.0329	0.0778	0.2278	0.4098	1.0461
2007-08	0.2937	-0.0263	0.0252	0.5979	0.2524	1.0100
Page Industries Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.4525	0.2119	0.6277	13.0911	3.2534	14.0191
2010-11	0.5668	0.1237	0.4204	7.6028	2.1527	8.9552
2009-10	0.4442	0.1053	0.4496	5.8461	2.2794	7.9513
2008-09	0.4404	0.0984	0.4216	3.1624	2.0389	5.9940
2007-08	0.3575	0.1106	0.3333	4.0889	1.7398	5.8770
Raymond Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.1609	0.0195	0.1148	1.2385	0.8953	2.2377
2010-11	0.2682	-0.0478	0.0933	0.8418	0.6468	1.7146
2009-10	0.2284	0.0109	0.0531	0.6057	0.5610	1.3888
2008-09	0.2179	-0.1085	0.0479	0.1871	0.5673	0.9472
2007-08	0.2280	0.0220	0.0397	0.7852	0.5864	1.4929

Source: Calculated from Annual Reports of Respective Companies

The table number 2 shows the Z score values and its components for Himatsingka, Page Industries and Raymond Ltd. However, all companies' average Z score value is 1.1251, 8.5593 and 1.5562 respectively. Here, two companies are found to be in distress zone viz. Himatsingka and Raymond Ltd., their Z score value is below 1.80. So we can say that these companies' financial health is not good and has high probability of getting bankrupt in future. Meanwhile, Page Industries Ltd having average Z score of 8.5593 which is beyond 2.99 that means this company's financial position is healthier and are in safe zone. In other words we can say that there is very low probability of getting bankrupt in future for Page Industries Ltd.

TABLE 3: Z SCORE CALCULATIONS FOR SKUMARSYNF, ZODIACLOTH AND BOMDYING

S. Kumars Nationwide Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.5903	0.0375	0.1941	0.2464	0.8825	2.4317
2010-11	0.5760	0.0330	0.1432	0.3690	0.6545	2.0859
2009-10	0.5234	0.0308	0.1286	0.4111	0.6258	1.9681
2008-09	0.5431	0.0211	0.0952	0.1779	0.5439	1.6460
2007-08	0.5713	0.0869	0.1693	0.9069	0.7838	2.6939
Zodiac Clothing Co. Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.5179	0.0246	0.0663	1.8340	1.4942	3.4693
2010-11	0.5001	0.0864	0.1102	2.5142	1.4927	4.0861
2009-10	0.5784	0.0883	0.1750	2.0472	1.6107	4.2343
2008-09	0.5498	0.0672	0.2551	0.9937	1.9245	4.1164
2007-08	0.4826	0.1053	0.1956	2.7489	1.7044	4.7258
Bombay Dyeing & Manufacturing Co. Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.5832	0.0148	0.1031	0.9146	0.9000	2.5094
2010-11	0.5083	0.0030	0.0960	0.0626	0.8537	1.8223
2009-10	0.3852	0.0044	0.1412	1.0678	0.8602	2.4353
2008-09	0.3939	-0.0954	0.0305	0.3154	0.6671	1.2960
2007-08	0.2487	0.0017	0.0361	1.3150	0.5264	1.7354

Source: Calculated from Annual Reports of Respective Companies

The table number 3 indicates the Z score values and its components for SKUMARSYNF, ZODIACLOTH AND BOMDYING. However, all companies' average Z score value is 2.1651, 4.1264 and 1.9597 respectively. Here, two companies are found to be in gray zone viz. SKUMARSYNF and BOMDYING, their Z score value is in between 1.81 to 2.99. So we can say that these companies' financial health is not good and also not bad. However, their cash flows are uncertain hence we can't say about probability of getting bankrupt in future. Moreover, ZODIACLOTH having average Z score found beyond 2.99 that means this company's financial position is healthier and are in safe zone. In other words we can say that there is very low probability of getting bankrupt in future for Zodiac Clothing Co. Ltd.

TABLE 4: Z SCORE CALCULATIONS FOR CENTENKA, GARDENSILK, INDORAMA AND SRF

Century Enka Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.2527	-0.0022	0.0835	0.2468	1.8674	2.5911
2010-11	0.2916	0.0616	0.1626	0.3739	1.4069	2.6039
2009-10	0.2162	0.1112	0.2867	0.7333	1.7005	3.5018
2008-09	0.1097	0.0087	0.1525	0.1789	1.6750	2.4294
2007-08	0.1970	0.0038	0.1209	0.2414	1.4638	2.2491
Garden Silk Mills Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.1967	-0.0450	0.0575	0.1272	2.1462	2.5853
2010-11	0.2584	0.0433	0.1599	0.1962	1.9630	2.9791
2009-10	0.1969	0.0371	0.1548	0.1718	1.7536	2.6558
2008-09	0.2229	0.0327	0.1158	0.1144	1.0341	1.7982
2007-08	0.2741	0.0287	0.1431	0.1648	1.5266	2.4667
Indo Rama Synthetics Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	-0.2268	0.0156	0.0903	0.3312	2.9516	3.1979
2010-11	-0.1043	0.0886	0.3093	0.7836	2.4405	3.9299
2009-10	-0.0782	0.0052	0.1519	0.3963	1.9324	2.5849
2008-09	-0.1024	-0.0641	0.1638	0.2039	1.6909	2.1412
2007-08	-0.0329	-0.0070	0.0872	0.3011	1.5891	2.0080
SRF Ltd.						
Year	X1	X2	X3	X4	X5	Z Score
2011-12	0.0694	0.1125	0.3029	0.5228	1.3923	2.9465
2010-11	0.1227	0.1626	0.3297	0.7860	1.3365	3.2710
2009-10	0.0652	0.1018	0.2694	0.5415	1.0658	2.5003
2008-09	0.0361	0.0541	0.2519	0.2403	1.0566	2.1512
2007-08	0.0592	0.0713	0.2393	0.4664	1.2206	2.4608

Source: Calculated from Annual Reports of Respective Companies

The table number 4 represents the Z score values and its components for CENTENKA, GARDENSILK, INDORAMA and SRF. However, all companies' average Z score value is 2.6751, 2.4970, 2.7724 and 2.6660 respectively. Here, all companies are found to be in gray zone, their Z score value is in between 1.81 to 2.99. So we can say that these companies' financial health is not good and also not bad. However, their cash flows are uncertain hence we can't say about probability of getting bankrupt in future.

**ANOVA (ANALYSIS OF VARIANCE)**

When one wish to compare the means of more than two groups or levels of independent variables, a one way analysis of variance is appropriate. Before performing the statistical analysis, however, we should review the assumptions required to such type of statistical test. We will able to formally test the normality and the homogeneity of variance assumptions. With large samples, homogeneity of variance is more critical than normality, but one should test the both. We can examine the normality assumptions by the use of a formal statistical test. Before conducting the ANOVA the necessary assumptions must be met. There are numerous assumptions for ANOVA, most important are as under.

- **Population Normality:** population from which the samples are drawn must be normally distributed. To check such normality assumption, one can use normality statistics such as the Kolmogorov-Smirnov test and Shapiro Wilk.
- **Homogeneity of Variance:** the data in each group should have homogeneous variances. Thus through Levene's test one can check whether variances are equal or not.

**TEST OF NORMALITY**

It assesses whether there is a significant departure from normality in the population distribution for each of the eight textile companies' Z score. However the null hypothesis stated as follow.

**Ho (Null hypothesis)** = the population sample is normally distributed.

**H1 (Alternate hypothesis)** = the population sample distribution is not normal.

Significance Level = 0.05

TABLE 5: TESTS OF NORMALITY

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Z Score	.248	65	.000	.655	65	.000

Source: SPSS Output.

Looking to the above test statistics, we have the Kolmogorov-Smirnov and Shapiro-Wilk. But we see the result of Shapiro-Wilk because it more appropriate when the sample size is less than one hundred. Thus from the tested significance of two variables, significance value for Z score is 0.000 which is lower than 0.05. Thus, we have to reject the null hypothesis and interpret that these data do violate the normality assumption. Which means the sample population is not normally distributed.

So further we need not to check for homogeneity of variance because first normality assumption is not met. Here we are well advised to use the **nonparametric** methods when our sample data do not meet one of the basic assumptions of normality.

**NONPARAMETRIC TESTS**

Sometimes we do not assume normality, and sometimes the data we have do not lend themselves to computing a mean. The various techniques featured in nonparametric tests are Mann-Whitney, Wilcoxon Signed Ranks and Kruskal Wallis and are applicable in just such circumstances. In particular, we will primarily use them when we cannot assume that our sample is drawn from a normal population. One of them used in this study is Kruskal Wallis is as under.

**KRUSKAL WALLIS**

The Kruskal Wallis H test is the nonparametric version of the one factor independent measures of ANOVA. We use this test if we have more than two independent samples. The Kruskal Wallis test ranks all the observed scores. If a difference among the group exists, then the scores from the various samples will be systematically clustered in the entire rank order. Alternatively, if there are no differences between the groups, the scores will be intermixed within the entire rank order. The null hypothesis stated as follow.

**Ho (Null hypothesis)** = there is no significance differences among the mean rank value of Z score of all textile companies

**H1 (Alternate hypothesis)** = there is significance differences among the mean rank value of Z score of all textile companies

TABLE 6: MEAN RANKS FOR Z SCORE

Ranks			
Variable	Company Name	N	Mean Rank
Z Score	Alok Industries Ltd.	5	11.40
	Arvind Ltd.	5	20.20
	Bombay Rayon Fashions Ltd.	5	23.40
	Himatsingka Seide Ltd.	5	6.20
	Page Industries Ltd.	5	63.00
	Raymond Ltd.	5	16.60
	S. Kumars Nationwide Ltd.	5	32.80
	Zodiac Clothing Co. Ltd.	5	57.60
	Bombay D & M Co. Ltd.	5	27.80
	Century Enka Ltd.	5	43.40
	Garden Silk Mills Ltd.	5	41.40
	Indo Rama Synthetics Ltd.	5	42.20
	SRF Ltd.	5	43.00
	Total	65	

Source: SPSS Output.

TABLE 7: TEST STATISTICS FOR Z SCORE

	Z Score
Chi-Square	50.425
Df	12
Asymp. Sig.	.000

Source: SPSS Output.

### INTERPRETATIONS

Interpreting table number 9 test statistics for Z score, significance value is 0.000 which is less than 0.05. Thus we can reject the null hypothesis and accept the alternate hypothesis that means there is some significance difference among the mean rank value of Z score for all studied textile companies. Further we can interpret from the table number 8 mean rank for Z score, how all those textile companies' financial performance is different to each other. Moreover, Z score defines the financial health of a company which differing significantly among studied groups. The highest mean rank for Z score is for Page Industries (63) and Zodiac (57.60) respectively. Meanwhile, Alok Industries (15.12) has the lowest Z score mean rank.

### FINDINGS

TABLE 8: AVERAGE Z SCORE AND ZONE OF DISCRIMINATION

Company Name	Z score Value	Zone of Discrimination
Alok Industries Ltd.	1.3248	Distress Zone
Arvind Ltd.	1.6817	Distress Zone
Bombay Rayon Fashions Ltd.	1.7677	Distress Zone
Himatsingka Seide Ltd.	1.1251	Distress Zone
Page Industries Ltd.	8.5593	Safe Zone
Raymond Ltd.	1.5562	Distress Zone
S. Kumars Nationwide Ltd.	2.1651	Gray Zone
Zodiac Clothing Co. Ltd.	4.1264	Safe Zone
Bombay Dyeing & Manufacturing Co. Ltd.	1.9597	Gray Zone
Century Enka Ltd.	2.6751	Gray Zone
Garden Silk Mills Ltd.	2.4970	Gray Zone
Indo Rama Synthetics Ltd.	2.7724	Gray Zone
SRF Ltd.	2.6660	Gray Zone

Source: Computed Value

We can clear observe the zone of each studied companies' financial position from the above table number 8. As such, two companies' average Z score value was found beyond 2.99 (Safe Zone) viz. Page Industries and Zodiac Clothing. Moreover, six companies' average Z score value found in between 1.81 to 2.99 (Gray Zone) i.e. S.Kumar, BDMCL, Century Enka, Garden Silk Mills, Indo Rama and SRF Ltd. Further, five companies' Z score value found below 1.80 (Distress Zone), they are Alok Industries, Arvind Ltd., BRFL, Himatsingka and Raymond Ltd.

Moreover from the Kruskal Wallis statistical test which is non parametric version of ANOVA; it was found that all companies were differing in Z score value. So we can say that all companies' financial position is differing under study periods. The highest mean rank was found for Page Industries Ltd. i.e. 63.00 followed by Zodiac i.e. 57.60.

### CONCLUSION

In conclusion, we can say that financial health plays significant role in the successful functioning of the organization. Distressed financial health threatens survival in the market and leads to business failure. As such, most of the textile products and synthetic companies in India has been caught in distressed zone and in gray zone which indicates that these companies are facing down cycle in financial performance. However all firms were differing in showing financial performance as their Z score value is statistically significant. Page Industries Ltd and Zodiac Clothing Co. Ltd have the highest mean rank, this shows these companies are financially sound and they are in safe zone. While rests of studied companies are in distress and in gray zone which indicates that their financial position is weak and chances of getting bankrupt is high.

### RECOMMENDATIONS

- Investors are clearly recommended that they can invest in Page Industries Ltd and Zodiac Clothing Co. Ltd because both the companies are in safe zone that means their financial position is very sound.
- Further bad news for Himatsingka Seide Ltd and Alok Industries because they have very low z score value so the probability of getting bankrupt is very high.

**LIMITATIONS**

1. Z score alone cannot serve the purpose of predicting bankruptcy; there are other models also available for failure prediction.
2. Model is applied only to the limited companies of Textile and Textile Synthetics industry which are listed on NSE 500.
3. Z score statistics alone cannot predict the bankruptcy; moreover management, promoters, demands supply, industry life cycle also leads to bankruptcy.

**SCOPE OF FURTHER RESEARCH**

1. Further study can be possible on NSE 50 index companies which are widely traded by investors instead of focusing on a particular sector.
2. Apart from Z score, there are other failure prediction models like ZETA model, Taffler and Tisshaw Model, Argenti Score Board.
3. Further financial performance of textile companies can be possible before global financial crisis and after financial crisis with the help of Z score model.

**REFERENCES**

1. Altman Edward I. (1968), "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy", The Journal of Finance, Vol. 23, No. 4, pp 589-609
2. Altman Edward I. and Edith Hotchkiss (2006), "Corporate Financial Distress and Bankruptcy" John Wiley and Sons Inc., Chapter 11, pp 239-243
3. Black Ken, (2004), "Business Statistics", Wiley India Pvt. Ltd., New Delhi, pp. 48-50, pp. 76-78.
4. Dr. D. Maheswara Reddy, Dr. C. R. Reddy (2011), "Application Of Z Score Analysis In Evaluating The Financial Health Of Pharmaceutical Companies- A Case Study Approach", International Journal of Research In Commerce & Management, Vol. 2, Issue 5, pp 104-107
5. Kishore Ravi M. (2011), "Strategic Financial Management" 2<sup>nd</sup> Edition, Taxmann Publications Pvt. Ltd., Haryana, p. 881
6. Kpodoh Bright (2009), "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy", Thesis, School of Management, Blekinge Institute of Technology, Ghana.
7. Nikolaos Gerantonis, Konstantinos Vergos, Apostolos G. Christopoulos (Oct. 2009), "Can Altman Z-score Models Predict Business Failures in Greece?", Research Journal of International Studies, Issue 12, pp 21-28
8. Pandey I.M. (2007), "Financial Management" 6<sup>th</sup> ed., New Delhi, Tata McGraw Hill Publication Company Limited. pp. 593-593
9. Richard I. Levin and David S. Rubin, (7<sup>th</sup> edition) "Statistics for Management", Pearson Education, pp 719-728.
10. Schindler S Pamela and Cooper R Donald (2006) "Business Research Methods", The McGraw-Hill Companies, New Delhi, pp. 69-78.
11. Sheridan J Coakes, Lyndall Steed and Peta Dzidic (2006), "SPSS analysis without Anguish" 13<sup>th</sup> Version, New Delhi, Wiley India Pvt. Ltd. pp. 72-76.

## REGULATORY FRAME WORK OF GOOD CORPORATE GOVERNANCE WITH REFERENCE TO INDIAN CORPORATE GOVERNANCE MECHANISMS

**G. VARA KUMAR**

**RESEARCH SCHOLAR**

**DEPARTMENT OF MANAGEMENT STUDIES**

**SRI VENKATESWARA UNIVERSITY**

**TIRUPATI**

**SHAIK MAHABOOB SYED**

**RESEARCH SCHOLAR**

**DEPARTMENT OF MANAGEMENT STUDIES**

**SRI VENKATESWARA UNIVERSITY**

**TIRUPATI**

### ABSTRACT

*Good governance means that processes and institutions produce results that meet the needs of society while making the best use of resources at their disposal. Good corporate governance (GCG) is a mandatory requirement in today's corporate world by every stakeholder groups. The analysis of the duties, responsibilities and obligations of different management group illustrates the complexities involved in the administration of modern corporations. With the broadening vision of modern thinkers and opinion makers and enhanced and heightened social values, it is now an unacceptable proposition that exist purely for the profit of those who constituted it. They are expected to be transparent, accountable and even beneficial to the larger society. Their employees, consumers of their products, and associates in their business as dealers and stockiest, the communities surrounding their facilities and workstations are as important as those who contributed their ecology. The paper is an earnest effort to uncover the issue and to protect it from such unfounded critics. It covers the concept of corporate governance, its legal framework, its current status and how accounting may be practiced to protect corporate from corruption by establishing governance. It finds that better corporate frameworks benefit firms through greater access to financing, lower cost of capital, better firm performance, and more favorable treatment of all stakeholders.*

### KEYWORDS

Transparency, Responsiveness, Accountability, Ethical Behavior, disclosure.

### INTRODUCTION

Corporations play a critical role---now ever growing---in the national economy. A nation's competitiveness and wealth, for that reason, depend on the competitive nature of its corporations. No doubt a transparent and reasonable governance structure bears positive impact on a company. Moreover, the issue of corporate governance structure now commands attention on the global stage. Corporations are the entities that create new economic value. And the competitiveness of businesses is crucial in determining the competitiveness of a country. As such, countries over the world are in pursuit of introducing competitive measures and practices according to international compatibility; liberalizing capital movement; and increasing the interaction between states to raise managerial efficiency and hence, enhance competitiveness of corporations of their respective nationality.

Corporate Governance in its most simplified iteration refers to the manner in which corporate bodies are managed and operated. Until the latter part of the 1900's the expression good corporate governance was invariably used to describe how well a business was directed and managed from the perspective of its controllers or managers. This was no doubt a truism in the context of privately owned companies in which the operators and shareholders were usually one and the same persons and there was no conflict between the persons managing or controlling by the company and the ultimate beneficiaries. However the same could not be said in respect of publicly owned enterprises in which the managers and controllers are not the sole beneficiaries of an enterprise. In such circumstances situations do arise wherein the objectives of the controllers or managers of the enterprise and the shareholders as a whole regarding the manner in which a company is directed and managed does not necessarily coincide.

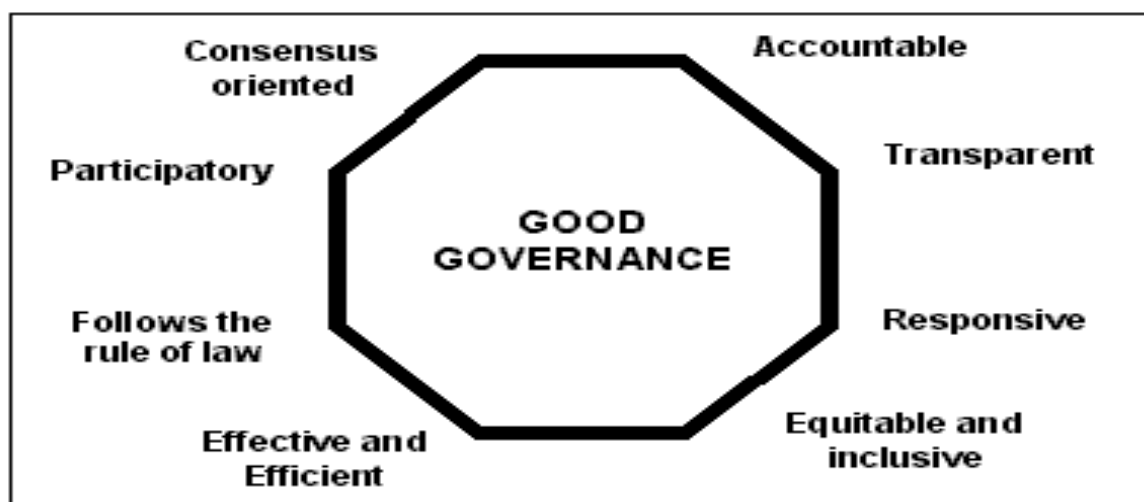
This impasse invariably gives rise to tensions between the controllers/managers and shareholders, which can sometimes have disastrous consequences not only for the company itself but also the commercial and economic environment the company, operate in. These tensions are sometimes aggravated through the lack of transparency and communication between the parties.

### CORPORATE GOVERNANCE ENCAPSULATES

- The management of the relationships between a corporate body's management, its board, its Shareholders and its other stakeholders.
- The provision of the structure through which the objectives of the company are identified and the monitoring of the means used to attain these objectives including the monitoring of performance in this regard.
- Bringing more transparency to bear on the decision-making processes of the company.
- The provision of proper incentives for the board and management to pursue objectives that is in the interests of the corporate body and shareholders.
- Encouraging the use of resources in a more efficient manner.
- The management of risk and the minimization of the effects of commercial misadventure.

The concept of "governance" is not new. It is as old as human civilization. Simply put "governance" means: the process of decision-making and the process by which decisions are implemented (or not implemented). Governance can be used in several contexts such as corporate governance, international governance, national governance and local governance. Since governance is the process of decision-making and the process by which decisions are implemented, an analysis of governance focuses on the formal and informal actors involved in decision-making and implementing the decisions made and the formal and informal structures that have been set in place to arrive at and implement the decision. Government is one of the actors in governance. Other actors involved in governance vary depending on the level of government that is under discussion.

Recently the terms "governance" and "good governance" are being increasingly used in development literature. Bad governance is being increasingly regarded as one of the root causes of all evil within our societies. Major donors and international financial institutions are increasingly basing their aid and loans on the condition that reforms that ensure "good governance" are undertaken. It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society.



### CHARACTERISTICS OF GOOD GOVERNANCE

- **PARTICIPATION**

Participation by both men and women is a key cornerstone of good governance. Participation could be either direct or through legitimate intermediate institutions or representatives. It is important to point out that representative democracy does not necessarily mean that the concerns of the most vulnerable in society would be taken into consideration in decision making.

- **RULE OF LAW**

Good governance requires fair legal frameworks that are enforced impartially. It also requires full protection of human rights, particularly those of minorities. Impartial enforcement of laws requires an independent judiciary and an impartial and incorruptible police force.

- **TRANSPARENCY**

Transparency means that decisions taken and their enforcement are done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such decisions and their enforcement. It also means that enough information is provided and that it is provided in easily understandable forms and media.

- **RESPONSIVENESS**

Good governance requires that institutions and processes try to serve all stakeholders within a reasonable timeframe.

- **CONSENSUS ORIENTED**

There are several actors and as many view points in a given society. Good governance requires mediation of the different interests in society to reach a broad consensus in society on what is in the best interest of the whole community and how this can be achieved.

- **EQUITY AND INCLUSIVENESS**

A society's well being depends on ensuring that all its members feel that they have a stake in it and do not feel excluded from the mainstream of society. This requires all groups, but particularly the most vulnerable, have opportunities to improve or maintain their well being.

- **EFFECTIVENESS AND EFFICIENCY**

The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment.

- **ACCOUNTABILITY**

Accountability is a key requirement of good governance. Not only governmental institutions but also the private sector and civil society organizations must be accountable to the public and to their institutional stakeholders.

### THE IMPORTANCE OF CORPORATE GOVERNANCE

The subject of corporate governance commenced attracting attention at national level in more developed markets in the late 1990's. This was in the wake of some spectacular business collapses, which appeared to be largely attributable to the lack of proper corporate governance. The above coupled with the globalization of economies and financial and investment markets in the 1990's lead to the convergence of national initiatives on the subject. This development was accelerated with the onset of the Asian crisis in mid 1997 after which the subject attracted significant attention internationally especially in the context of emerging markets. Whilst the causes of the crisis are still the subject of contention and debate there is an overall consensus that the lack of proper corporate governance in companies operating in the affected economies contributed significantly to the onset and spread of the contagion.

In this background a concerted international effort was initiated to improve the levels of corporate governance especially in emerging market economies. This initiative was no doubt spurred on amongst other factors by the recognition that the degree to which corporations observe basic principles of good corporate governance will be an increasingly important factor for investment decisions in the future.

### THE PRINCIPLES OF CORPORATE GOVERNANCE

The principles advocated in these codes are essentially non-binding and embody the experience and views of members in countries of these organizations on the subject. While a multiplicity of factors affect the governance and decision-making processes of firms, and are important to their long-term success, the principles focus primarily on governance problems that result from the separation of ownership and control.

Key elements of good corporate governance principles include honesty, trust and integrity, openness, performance orientation, responsibility and accountability, mutual respect, and commitment to the organization.

### COMMONLY ACCEPTED PRINCIPLES OF CORPORATE GOVERNANCE

- **RIGHTS AND EQUITABLE TREATMENT OF SHAREHOLDERS:** Organizations should respect the rights of shareholders and help shareholders to exercise those rights. They can help shareholders exercise their rights by effectively communicating information that is understandable and accessible and encouraging shareholders to participate in general meetings.
- **INTERESTS OF OTHER STAKEHOLDERS:** Organizations should recognize that they have legal and other obligations to all legitimate stakeholders.
- **ROLE AND RESPONSIBILITIES OF THE BOARD:** The board needs a range of skills and understanding to be able to deal with various business issues and have the ability to review and challenge management performance.

- **INTEGRITY AND ETHICAL BEHAVIOUR:** Ethical and responsible decision making is not only important for public relations, but it is also a necessary element in risk management and avoiding lawsuits. Organizations should develop a code of conduct for their directors and executives that promotes ethical and responsible decision making.
- **DISCLOSURE AND TRANSPARENCY:** Organizations should clarify and make publicly known the roles and responsibilities of board and management to provide shareholders with a level of accountability. They should also implement procedures to independently verify and safeguard the integrity of the company's financial reporting.

Recently the terms "governance" and "good governance" are being increasingly used in development literature. Bad governance is being recognized now as one of the root causes of corrupt practices in our societies. Major donors, institutional investors and international financial institutions provide their aid and loans on the condition that reforms that ensure "good governance" are put in place by the recipient nations. As with nations, corporations too are expected to provide good governance to benefit all their stakeholders. At the same time, good Corporates are not born, but are made by the combined efforts of all stakeholders, which include shareholders, board of directors, employees, customers, dealers, government and the society at large. Law and regulation alone cannot bring about changes in corporate to behave better to benefit all concerned. Directors and management, as goaded by stakeholders and inspired by societal values, have a very important role to play. The company and its officers, who, *inter alia*, include the board of directors and the officials, especially the senior management, should strictly follow a code of conduct, which should have the following desiderata:

## REVIEW OF LITERATURE

Hundreds of articles and dozens of books have been written about corporate governance in the last few years alone. One book that should be mentioned is *Corporate Governance* by Monks and Minow (2004). Davis Global Advisors publishes an annual *Leading Corporate Governance Indicators* (2007), which measures corporate governance compliance using a variety of indicators.

The Cadbury Report (1992) published the findings of the Committee on Financial Aspects of Corporate Governance. The Greenbury Report (1995) discusses directors' remuneration. The Hampel Committee Report (1998) addresses some of the same issues as the Cadbury and Greenbury reports. It has separate sections on the principles of corporate governance, the role of directors, directors' remuneration, the role of shareholders, accountability and audit and issued conclusions and recommendations. The *Encyclopedia of Corporate Governance* is a good reference tool for obtaining information on corporate governance. It is available online. The OECD's *Principles of Corporate Governance* (1999) has been used as a benchmark for a number of corporate governance codes in transition economies. OECD has also published a *Survey of Corporate Governance Developments in OECD Countries* (2003b). The European Corporate Governance Institute maintains many links to codes of corporate conduct for many countries on its website.

The OECD has also published several studies on corporate governance in Asia, the most notable being its *White Paper on Corporate Governance in Asia* (2003c). Clarke (2000) criticized corporate governance structures in Asia. His criticism focused on the Asian financial crisis, which was partially caused by poor corporate governance practices.

The Securities and Exchange Board of India (2002) issued the *Kumar Report* on corporate governance in India. This report attempted to evolve a code of corporate governance for Indian corporations. Mani (2004) did a country study of India for Standard & Poor's that looked at a number of factors, including market infrastructure, the legal environment, the regulatory environment and the informational infrastructure.

Solomon, Solomon and Park (2002a) developed a conceptual framework for corporate governance in Korea. They also examined some empirical evidence on the evolving role of institutional investors (2002b). Jang and Kim (2002) did a case study of Samsung Corporation's governance policies and procedures. Kim (2003) looked at the interlocking ownership of the Korean chaebols. Wong (2004) did a country governance study of Korea for Standard & Poor's that examined the same factors as those examined by Mani (2004) in the India study.

In 2008, the world experienced the biggest economic crisis since the Great Depression (Blundell- Wignall, Atkinson, & Lee, 2009; Cheffins, 2009; Ely, 2009; Lang & Jagtiani, 2010). Stock prices dropped further than they had in a single year since the 1930s, and major banks either received bailouts or entered bankruptcy (Cheffins, 2009). Prior to the crisis, aggressive lenders engaged in extremely high-risk subprime mortgages and violated traditional underwriting standards for the industry (Lewis, Kay, Kelso, & Larson, 2010). When the overheated real estate market began to cool down, it produced a domino effect that caused the collapse of major players in the financial sector.

Scholars have agreed that a bubble in housing prices triggered the crisis (Lang & Jagtiani, 2010; Scott, 2009; Yeoh, 2010). They further cite a failure to properly regulate the market for subprime mortgages, mortgage securitization, and the exposure of the banking system to securitization risk (Grosse, 2010; Paccos, 2010; Rotheli, 2010). This failure "triggered the downward spiral transforming a liquidity crisis in a credit crunch, a cyclical slowdown of the economy in a severe recession, underperformance of financial assets in banks' inability to fuel investments and growth" (Paccos, 2010, p. 80). As Paces (2010) explains:

Individual mortgage deals were closed as they were pooled together with thousands of similar mortgages, securitized, and sold immediately to investors in different tranches of Mortgage Backed Securities (MBS). In this way, originators could earn their fees without bearing any risk. Mortgage originators did not have incentives to screen the quality of the credit being provided, for the simple reason they did not have sufficient ... skin in the game. (Paccos, 2010, p. 82)

## OBLIGATION TO SOCIETY AT LARGE

A corporation is a creation of law as an association of persons forming part of the society in which it operates. Its activities are bound to impact the society as the society's values would have an impact on the corporation. Therefore, they have mutual rights and obligations to discharge for the benefit of each other.

**1. National interest:** A company (and its management) should be committed in all its actions to benefit the economic development of the countries in which it operates and should not engage in any activity that would militate against such an objective. A company should not undertake any project or activity detrimental to the nation's interest or those that will have an adverse impact on the social and cultural life patterns of its citizens. A company should conduct its business in consonance with the economic development of the country and the objectives and priorities of the nation's government and must strive to make a positive contribution to the realisation of its goals.

**2. Political non-alignment:** A company should be committed to and support a functioning democratic constitution and system with a transparent and fair electoral system and should not support directly or indirectly any specific political party or candidate for political office. The company should not offer or give any of its funds or property as donations directly or indirectly to any specific political party candidate or campaign.

**3. Legal compliances:** The management of a company should comply with all applicable government laws, rules' and regulations. The employees and directors should acquire appropriate knowledge of the legal requirements relating to their duties sufficient to recognise potential dangers. Violations of applicable governmental laws, rules and regulations may subject them to individual criminal or civil liability as well as disciplinary action by the company apart from subjecting the company itself to civil or criminal liability or even the loss of business.

Legal compliance will also mean that corporations should abide by the tax laws of the nations in which they operate such as corporate tax, Income tax, Excise Duties, sales tax, Customs and other levies imposed by respective governments. These should be paid on time and as per the required amount.

**4. Honest and ethical conduct:** Every officer of the company including its Directors, executive and non executive directors, managing director, CEO, CFO and CCO should deal on behalf of the company with professionalism, honesty, commitment and sincerity as well as high moral and ethical standards. Such conduct must be fair and transparent and should be perceived as such by third parties as well. The officers are also expected to act in accordance with the highest standards of personal and professional integrity and ethical conduct at their place of work or while working on offsite locations where the company's business are located or at social events or at any other place where they represent the company. Honest conduct is a conduct that is free from fraud or deception. Ethical conduct is an ethical handling of actual or apparent conflicts between personal and professional relationship.

**5. Corporate citizenship:** A corporation should be committed to be a good corporate citizen not only in compliance with all relevant laws and regulations, but also by actively assisting in the improvement of the quality of life of the people in the communities in which it operates with the objective of making them self-reliant and enjoy a better quality of life.

**6. Ethical behavior:** Corporations have a responsibility to set exemplary standards of ethical behavior, both internally within the organisation, as well as in their external relationships. Unethical behaviour corrupts organisational culture and undermines stakeholder value. The board of directors have a great moral responsibility to ensure that the organisation does not derail from an upright path to make short-term gains.

**7. Social concerns:** Corporations exist beyond time and space. So they have to set an example to their employees and shareholders. New paradigm is that the company should not only think about its shareholders but also think about its stakeholders and their benefit. A corporation should not give undue importance to shareholders at the cost of small investors. They should treat all of them equally and equitably. The company should have concerns towards the society. It can help the needy people and show its concern by not polluting the water, air and land. The waste disposal should not affect any human or other living creatures.

**8. Corporate social responsibility:** Accountability to stakeholders is a continuing topic of divergent views in corporate governance debates. In line with the developing trends towards an integrated model of governance toward the creation of an ideal corporate, the emphasis should be laid on corporate social responsiveness and ethical business practices seeking what might well turn out to be not only the first small steps for better governance on this front but also the promise of a more transparent and internationally respected corporates of the future.

**9. Environment-friendliness:** Corporations tend to be intervening in altering and transforming nature. For corporations engaged in commodity manufacturing, profit comes from converting raw materials into saleable products and vendible commodities. Metals from the ground are converted into consumer durables. Trees are converted into boards, houses, and furniture and paper products. Oil is converted into energy. In all such activities, a piece of nature is taken from where it belongs and processed into a new form. So companies have a moral responsibility to save and protect the environment. All the pollution standards have to be followed meticulously and organizations should develop a culture having more concern towards environment.

**10. Healthy and safe working environment:** A company should be able to provide a safe and healthy working environment and comply with the conduct of its business affairs with all regulations regarding the preservation of environment of the territory it operates in. It should be committed to prevent the wasteful use of natural resources and minimise the hazardous impact of the development, production, use and disposal of any of its products and services on the ecological environment.

**11. Competition:** A company should play its role in the establishment and support a competitive, open market economy and co-operate to promote the progressive and judicious liberalisation of trade and investment by a country. It should not covertly or overtly engage in activities, which lead to or support the formation of monopolies, dominant market positions, cartels and similar unfair trade practices.

A company should market its products and services on its own merits and should not resort to unethical advertisements or include unfair and misleading pronouncements on competitors' products and services. Any collection of competitive information shall be made only in the normal course of business and shall be obtained only through legally permitted sources and means.

**12. Trusteeship:** Corporates have both a social purpose and an economic purpose. They represent a coalition of interests, namely, those of the shareholders, other providers of capital, business associates and employees. This belief, therefore, casts a responsibility of trusteeship on the company's board of directors. They are to act as trustees to protect and enhance shareholder value, as well as to ensure that the company fulfills its obligations and responsibilities to its other stakeholders. Inherent in the concept of trusteeship is the responsibility to ensure equity, namely, that the rights of all shareholders, large or small, foreign or local, majority or minority, are equally protected.

**13. Timely responsiveness:** Good governance requires that institutions and processes try to serve all stakeholders within a reasonable timeframe. They should also address the concerns of all stakeholders and the society at large.

**14. Corporations should uphold the fair name of the country:** When companies export their products or services, they should ensure that these are qualitatively good and are delivered in time. They have to ensure that the nation's reputation is not sullied abroad during their deals, either as exporters or importers. They have to ensure maintenance of the quality of their products, which should be the brand ambassadors for the country.

## OBLIGATION TO INVESTORS

Obligation to investors that the investors as shareholders and providers of capital are of paramount importance to a corporation is such an accepted fact that it need not be overstressed here. A company has the following obligations towards investors:

**1. Towards shareholders:** A company should be committed to enhance shareholder value and comply with all regulations and laws that govern shareholder's rights. The board of directors of the company shall and fairly inform its shareholders about all relevant aspects of the company's business and disclose such information in accordance with the respective regulations and agreements. Every employee shall strive for the implementation of and compliance with this in his professional environment. Failure to adhere to the code could attract the most severe consequences including termination of employment or directorship as the case may be.

**2. Measures promoting transparency and informed shareholder participation:** A related issue of equal importance is the need to bring about greater levels of informed attendance and meaningful participation by shareholders in matters relating to their companies without, however, such freedom being abused to interfere with management decision. An ideal corporate should address this issue and relate it to more meaningful and transparent accounting and reporting.

**3. Transparency:** Transparency means that decisions taken and their enforcement are done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such decisions and their enforcement. It also means that enough information is provided and that it is provided in easily understandable forms and media.

**4. Financial reporting and records:** A company should prepare and maintain accounts of its business affairs fairly and accurately in accordance with the accounting and financial reporting standards, laws and regulations of the country in which the company conducts its business affairs. Likewise, internal accounting and audit procedures shall fairly and accurately reflect all of the company's business transactions and disposition of assets. All required information shall be accessible to the company's auditors, non-executive and independent directors on the board and other authorized parties and government agencies. There shall be no willful omissions of any transaction from the books and records, no advance income recognition and no hidden bank account and funds. Such willful material misrepresentation of and/or misinformation on the financial accounts and reports shall be regarded as a violation of the firm's ethical conduct and also will invite appropriate civil or criminal action under the relevant laws of the land.

## OBLIGATION TO EMPLOYEES

For too long, corporations in free societies had been adopting a "Hire and Fire" policy in employment of men and women in their work places and hardly treated them humanely taking advantage of the fact that workers had a commodity, namely, labour that was highly perishable with little bargaining power. But in the context of enhanced awareness of better governance practices, managements should realize that they have their obligations towards their workers too.

**1. Fair employment practices:** An ideal corporate should commit itself to fair employment practices, and should have a policy against all forms of illegal discrimination. By providing equal access and fair treatment to all employees on the basis of merit, the success of the company will be improved while enhancing the progress of individuals and communities. The applicable labour and employment laws should be followed scrupulously wherever it operates. That includes observing those laws that pertain to freedom of association, privacy, and recognition of the right to engage in collective bargaining, the prohibition of forced, compulsory and child labour, and also laws that pertain to the elimination of any improper employment discrimination.

**2. Equal opportunities to all employees:** A company should provide equal opportunities to all its employees and all qualified applicants for employment without regard to their race, caste, religion, colour, ancestry, marital status, sex, age, nationality, disability and veteran status. Its employees should be treated with dignity and in accordance with a policy to maintain a conducive work environment free of sexual harassment, whether physical, verbal or psychological.

Employee policies and practices should be administered in a manner that ensures that in all matters equal opportunity is provided to those eligible and the decisions are merit-based.

**3. Encouraging whistle blowing:** It is generally felt that if whistle blower concerns have been addressed to some of the recent disasters could have been avoided, and that in order to prevent future misconduct, whistle blowers should be encouraged to come forward. So an ideal corporate is one that deals proactively with whistle blowers and to make sure employees have comfortable reporting channels and are confident that they will be protected from any form of retribution. Such an approach will enhance the company's chances to become aware of, and to appropriately deal with, a concern before an illegal act has been committed rather than after the damage has been done. If reporting is delayed, the company's reputation can be seriously harmed and it can face a serious risk of prosecution with all its disastrous consequences. An ideal Whistle Blower Policy would mean:

(a) Personnel who observe an unethical or improper practice (not necessarily a violation of law) shall be able to approach the CEO or the audit committee without necessarily informing their supervisors.

(b) The company shall take measures to ensure that this right of access is communicated to all employees through means of internal circulars, etc. The employment and other personnel policies of the company should contain provisions protecting "whistle blowers" from unfair termination and other prejudicial employment practices.

(c) The appointment, removal and terms of remuneration of the chief internal auditor shall be subject to review by the audit committee.

**4. Humane treatment:** Now corporations are viewed like humans and similar kind of behaviour is expected from them like a man with good sense. Companies should treat their employees as their first customers and above all as human. They have to meet the basic needs of all employees in the organisation. There should be a friendly, healthy and competitive environment for the workers to prove their ability.

**5. Participation:** Participation by both men and women is a key cornerstone of good governance. Participation could be either direct or through legitimate intermediate institutions or representatives. Participation needs to be informed and organised. This means freedom of association and expression on the one hand and an organised civil society on the other.

**6. Empowerment:** Empowerment is an essential concomitant of any company's principle of governance that management must have the freedom to drive the enterprise forward. Empowerment is a process of actualising the potential of its employees. Empowerment unleashes creativity and innovation throughout the organisation by truly vesting decision-making powers at the most appropriate levels in the organisational hierarchy.

**7. Equity and inclusiveness:** A corporation is a miniature of a society whose well being depends on ensuring that all its employees feel that they have a stake in it and do not feel excluded from the mainstream. This requires all groups, particularly the most vulnerable, have opportunities to improve or maintain their well being.

**8. Participative and collaborative environment:** There should not be any form of human exploitation in the company. There should be equal opportunities for all levels of management in any decision-making. The management should cultivate the culture where employees should feel they are secure and are being well taken care of. Collaborative environment would bring peace and harmony between the working community and the management, which in turn, brings higher productivity, higher profits and higher market share.

## OBLIGATION TO CUSTOMERS

A corporation's existence cannot be justified without its being useful to its customers. Its success in the marketplace, its profitability and its being beneficial to its shareholders by paying dividends depends entirely as to how it builds and maintains fruitful relationships with its customers.

1. Provide Quality Products and Services
2. Products at affordable prices
3. Unwavering commitment to customer satisfaction

## CONCLUSION

The analysis of the duties, responsibilities and obligations of different management group illustrates the complexities involved in the administration of modern corporations. Gone are the days when the society looked at corporations as forms of business enterprises working exclusively for the material benefit of its shareholders. With the broadening vision of modern thinkers and opinion makers and enhanced and heightened social values, it is now an unacceptable proposition that exist purely for the profit of those who constituted it. They are expected to be transparent, accountable and even beneficial to the larger society. Their employees, consumers of their products, and associates in their business as dealers and stockiest, the communities surrounding their facilities and workstations are as important as those who contributed their ecology. And the concerns are no more community based or country – specific. In a global village such as the one all of us are moving into, if a corporate has to survive, grow and wants to be counted, its vision should focus on the ways and means of becoming a responsible and responsive corporate citizen, and its mission could no more be myopic as it used to be in the distant past. The values, concerns, duties and responsibilities the society casts on the corporate are exemplified in the following beautifully formulated and well – articulated Credo of Johnson & Johnson.

## REFERENCES

1. Adams, R. (2009, April). Governance and the financial crisis (ECGI Finance Working Paper No. 248/2009). Retrieved from SSRN website: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1398583](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1398583)
2. Afrasine, L. (2009). The financial crisis: Global governance failure? Review of Economic and Business Studies, 3, 161-177.
3. Aggarwal, Reena, Leora Klapper, and Peter D. Wysocki (2003), "Portfolio Preferences of Foreign Institutional Investors," World Bank Working Paper.
4. Anwar, J. (2009, July). The U.S financial crisis from 2007: Are there regulatory and governance failure? Journal of Business and Policy Research, 4(1), 25-49.
5. Aquila, F. (2009, December 9). Corporate governance: Don't rush reform. Business Week, 9. Retrieved from [http://www.businessweek.com/investor/content/dec2009/pi2009128\\_869797.htm](http://www.businessweek.com/investor/content/dec2009/pi2009128_869797.htm).
6. Bae, Kee-Hong, Jun-Koo Kang and Jin-Mo Kim (2002), Tunneling or Value Added? Evidence from Mergers by Korean Business Groups," Journal of Finance," vol. 57, pp. 2695- 2740.
7. BAGCHI, A.K., private investment in india: 1900 – 1939 (1972).
8. Bebchuk, L. A., Cohen, A., & Spamann, H. (2010). The wages of failure: Executive compensation at Bear Stearns and Lehman 2000-2008. Yale Journal on Regulation, 27, 257-282.
9. Beltratti, A., & Stulz, R. M. (2009, July). Why did some banks perform better during the credit crisis? A cross-country study of the impact of governance and regulation (ECGI Finance Working Paper No. 254/2009). Retrieved from SSRN website: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1433502](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1433502).
10. Bhagat, Sanjai, and Roberta Romano (2002), "Event Studies and the Law: Part I: Technique and Corporate Litigation," American Law and Economics Review", Vol. 4, 141-168.
11. Bhagat, Sanjai, and Roberta Romano (2002a), Event Studies and the Law: Part II: Empirical Studies of Corporate Law, "American Law and Economics Review", Vol. 4, 380-423.
12. Bhattacharyya, Asish K and Sadhalaxmi Vivek Rao (2005), — Economic Impact of Regulation on Corporate Governance: Evidence from India.
13. Black, Bernard, Hasung Jang & Woochan Kim (2006), — Does Corporate Governance Affect Firms' Market Values? Evidence from "Korea Journal of Law, Economics and Organization", Vol. 22, pp. 366-413.
14. Brown, Stephen J. & Jerold B. Warner, — Using Daily Stock Returns: The Case of Event Studies, "Journal of Financial Economics," 14 (1985) 3-31.
15. Cadbury Report (1992), "The Financial Aspects of Corporate Governance", London: Gee and Co. Ltd.

16. Cadbury, A., et al. (The Cadbury Report) (1992). Report of the Committee on Financial Aspects of Corporate Governance, December 1, 1992, London: Gee Publishing Ltd. Available at <http://www.worldbank.org/html/fpd/privatesector/cg/docs/cadbury.pdf>.
17. Clarke, T. (2000). Haemorrhaging Tigers: The Power of International Financial Markets and the Weaknesses of Asian Modes of Corporate Governance. *Corporate Governance*, 8(2), 101-116.
18. Davis Global Advisors (2007). Leading Corporate Governance Indicators, Newton, MA: Davis Global Advisors. [www.davisglobal.com/publications/lcgi/index.html](http://www.davisglobal.com/publications/lcgi/index.html) Annual publication.
19. Dr. Sanchez, Alfonso Vargas, "Agency Theory Versus Stewardship Theory in Welsh Agrarian Cooperative Societies", *Development of Corporate Governance Systems. International Journal of Business Governance and Ethics*, Vol. 1, No. 1 (2004).
20. Greenbury, R. et al. (Greenbury Report). (1995). Directors' Remuneration: Report of a Study Group Chaired by Sir Richard Greenbury, London: Gee Publishing Ltd., July 17, 1995. Available at <http://www.baacgsig.qub.ac.uk/>
21. Greener Michael in the Penguin Dictionary of Commerce, p. 113.
22. Jang, H. & Kim, J. (2002). Nascent Stages of Corporate Governance in an Emerging Market: Regulatory Change, Shareholder Activism and Samsung Electronics. *Corporate Governance*, 10(2), 94-105.
23. Kim, J. (2003). Interlocking Ownership in the Korean Chaebol. *Corporate Governance*, 11(2), 132-142.
24. Kutchal, M. C. (2001), *Modern Indian Company Law*, Delhi: Shree Mahavir Book Depot, p. 20.
25. Machold, S. and A. K. Vasudevan (2004) "Corporate Governance Models in Emerging Markets: The Case of India", *International Journal of Business Governance and Ethics*, Vol. 1, No. 1.
26. Machold, S. and A. K. Vasudevan (2004), "Corporate Governance Models in Emerging Markets: The Case of India", *International Journal of Business Governance and Ethics*, Vol.1, No.1.
27. Mani, G.V. (2004). *Country Governance Study: India*. Mumbai: Standard & Poor's.
28. Monks, R.A.G. & Minow, N. (Eds) (2004). *Corporate Governance*, third edition, London: Blackwell Publishers.
29. Organization for Economic Co-operation and Development (1999), *Principles of Corporate Governance*, Paris: OECD Publications.
30. Rajagopalan, R. *Directors and Corporate Governance*, Chennai: Company Law Institute of India Pvt. Ltd.
31. Sarkar, Jayati and Subrata, Sarkar (Sept. 2000), "Large Shareholder Activism in Corporate Governance in Developing Countries: Evidence from India", *International Review of Finance*, Vol.1, Issue 3.
32. Securities and Exchange Board of India (2002). Report of the Committee Appointed by the SEBI on Corporate Governance under the Chairmanship of Shri Kumar Mangalam Birla (Kumar Report). Securities and Exchange Board of India.
33. Smallman, Clive (2004), "Exploring Theoretical Paradigms in Corporate Governance", *International Journal of Business Governance and Ethics*, Vol 1, No.1.
34. Solomon, J., Solomon, A. & Park, C. (2002a). A Conceptual Framework for Corporate Governance Reform in South Korea. *Corporate Governance*, 10(1), 29-46.
35. Solomon, J., Solomon, A. & Park, C. (2002b). The Evolving Role of Institutional Investors in South Korean Corporate Governance: Some Empirical Evidence. *Corporate Governance*, 10(3), 211-224.
36. Tam, O.K. (2000). Models of Corporate Governance for Chinese Companies. *Corporate Governance*, 8(1), 52-64.
37. Tata Engineering & Locomotive Company Ltd V. State of Bihar, AIR (1965) S. C. 40.
38. Wong, C. (2004). *Country Governance Study: Korea*. Hong Kong: Standard & Poor's.

## **REQUEST FOR FEEDBACK**

**Dear Readers**

At the very outset, International Journal of Research in Commerce, IT and Management (IJRCM) acknowledges & appreciates your efforts in showing interest in our present issue under your kind perusal.

I would like to request you to supply your critical comments and suggestions about the material published in this issue as well as on the journal as a whole, on our E-mail i.e. [infoijrcm@gmail.com](mailto:infoijrcm@gmail.com) for further improvements in the interest of research.

If you have any queries please feel free to contact us on our E-mail [infoijrcm@gmail.com](mailto:infoijrcm@gmail.com).

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward an appropriate consideration.

With sincere regards

Thanking you profoundly

**Academically yours**

Sd/-

**Co-ordinator**

## ABOUT THE JOURNAL

In this age of Commerce, Economics, Computer, I.T. & Management and cut throat competition, a group of intellectuals felt the need to have some platform, where young and budding managers and academicians could express their views and discuss the problems among their peers. This journal was conceived with this noble intention in view. This journal has been introduced to give an opportunity for expressing refined and innovative ideas in this field. It is our humble endeavour to provide a springboard to the upcoming specialists and give a chance to know about the latest in the sphere of research and knowledge. We have taken a small step and we hope that with the active co-operation of like-minded scholars, we shall be able to serve the society with our humble efforts.

### *Our Other Journals*

