

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, ECONOMICS & 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.](#), [Google Scholar](#),

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

[The American Economic Association's electronic bibliography, EconLit, U.S.A.](#),

[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 5555 Cities in 190 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.	RANA PLAZA: A FAILURE OF GOVERNANCE <i>DR. REVATHI IYER & DR. C N NARAYANA</i>	1
2.	CUSTOMERS' EXPECTATION AND MANAGEMENT'S PERCEPTION OF SERVICE QUALITY: A STUDY OF HOTEL INDUSTRY IN SELECTED CITIES OF TIGRAY REGION, ETHIOPIA <i>GUESH BERHE GEBREMICHAEL & DR. AMARINDER SINGH</i>	7
3.	STATUS OF TRIBAL WOMEN IN AGRICULTURE <i>DR. HEMA SRIKUMAR & C. ATHENA</i>	16
4.	WOMEN EMPOWERMENT THROUGH DISTRICT CO-OPERATIVE BANKS (DCBs) IN LUCKNOW AND AMBEDKAR NAGAR DISTRICTS IN UTTAR PRADESH <i>K. ANBUMANI & DR. X.L.X.WILSON</i>	18
5.	AN ASSESSMENT OF THE AWARENESS OF EMPLOYEE STATE INSURANCE CORPORATION AND ITS BENEFITS AMONG THE BENEFICIARIES IN COIMBATORE <i>DR. N.A. KRISHNAMURTHI & D. SASIKALA</i>	38
6.	AN EMPIRICAL STUDY OF PROFITABILITY ANALYSIS OF SELECTED COMPANIES IN INDIAN PAINT INDUSTRY <i>S.KAMALADEVI & DR. A. VIJAYAKUMAR</i>	41
7.	PERFORMANCE ANALYSIS OF DISTRICT CENTRAL CO-OPERATIVE BANKS (DCCBs) IN TAMIL NADU - A STUDY <i>K.MARAGATHAM & DR. P.KANNAPIRAN</i>	45
8.	PROFITABILITY AND LIQUIDITY RATIOS ANALYSIS: AN EMPIRICAL STUDY OF SELECTED CEMENT COMPANIES IN ANDHRA PRADESH <i>B R MURTHY, V KIRANMAI & G. MALLAYYA</i>	49
9.	MICRO, SMALL AND MEDIUM ENTERPRISE IN INDIA: PERFORMANCE, TRENDS AND CHALLENGES <i>DR. N. LALITHA & DR. G. ARTI</i>	53
10.	ROLE OF PRIMARY AGRICULTURAL CO-OPERATIVE SOCIETY (PACS) IN AGRICULTURAL DEVELOPMENT IN INDIA <i>DR. YASHODA</i>	58
11.	THE USE STUDY OF NEW COMMUNICATION TECHNOLOGY FOR ELECTRONIC COMMERCE CONSUMER <i>NIU LUNG-GUANG</i>	61
12.	FALLING LABOUR'S SHARE OF INCOME <i>NEHA GUPTA</i>	70
13.	TRENDS OF FDI IN INDIAN RETAIL SECTOR <i>DR. S. G. VAIDYA</i>	74
14.	A STUDY ON THE BANKING OMBUDSMAN SCHEME <i>SHITAL GANESH KENE</i>	76
15.	TESTING TECHNICAL INDICATORS: A STUDY WITH SPECIAL REFERENCE TO CNX IT <i>S. NAGARAJAN</i>	80
16.	GREEN HRM – A NEW PERSPECTIVE TO PROMOTE ENVIRONMENT MANAGEMENT SYSTEM INITIATIVES <i>AMRITA P. TAIDE</i>	85
17.	LENDING PRACTICES OF PRIVATE AND PUBLIC BANKS OF TAKHATPUR: A COMPARATIVE STUDY <i>SWATI PANDEY & DR. ARCHANA AGRAWAL</i>	88
18.	IDENTIFICATION OF SIGNIFICANT FINANCIAL RATIOS FOR DIAGNOSIS OF FINANCIAL DISTRESS IN INDIAN POWER INDUSTRIES BY PARALLEL ANALYSIS USING MONTE CARLO SIMULATION <i>PARAG RAY & DR. G. SUNITHA</i>	96
19.	IMPACT OF NABARD IN JAMMU AND KASHMIR ECONOMY THE STUDY OF CREDIT FACILITIES AND CREDIT ISSUES IN BARAMULLA DISTRICT <i>RIZWAN QAYOOM</i>	100
20.	REASONS AND FACTORS INFLUENCING SMSE: LEARNINGS OF SICKNESS IN UNREGISTERED INDIAN INDUSTRIES <i>UMME KULSUM</i>	103
	REQUEST FOR FEEDBACK & DISCLAIMER	112

CHIEF PATRON**Prof. (Dr.) K. K. AGGARWAL**

Chairman, Malaviya National Institute of Technology, Jaipur
 (An institute of National Importance & fully funded by Ministry of Human Resource Development, Government of India)
 Chancellor, K. R. Mangalam University, Gurgaon
 Chancellor, Lingaya's University, Faridabad
 Founder Vice-Chancellor (1998-2008), 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 Syntex Ltd. (Textile Mills), Bhiwani

CO-ORDINATOR**Dr. BHAVET**

Faculty, Shree Ram Institute of Engineering & Technology, Urjani

ADVISOR**Prof. S. L. MAHANDRU**

Principal (Retd.), Maharaja Agrasen College, Jagadhri

EDITOR**Dr. R. K. SHARMA**

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

FORMER CO-EDITOR**Dr. S. GARG**

Faculty, Shree Ram Institute of Business & Management, Urjani

EDITORIAL ADVISORY BOARD**Dr. TEGUH WIDODO**

Dean, Faculty of Applied Science, Telkom University, Bandung Technoplex, Jl. Telekomunikasi, Indonesia

Dr. M. S. SENAM RAJU

Professor, School of Management Studies, I.G.N.O.U., New Delhi

Dr. JOSÉ G. VARGAS-HERNÁNDEZ

Research Professor, University Center for Economic & Managerial Sciences, University of Guadalajara, Guadalajara, Mexico

Dr. M. N. SHARMA

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

Dr. CHRISTIAN EHIOBUCHÉ

Professor of Global Business/Management, Larry L Luing School of Business, Berkeley College, USA

Dr. SIKANDER KUMAR

Chairman, Department of Economics, Himachal Pradesh University, Shimla, Himachal Pradesh

Dr. MIKE AMUHAYA IRAVO

Principal, Jomo Kenyatta University of Agriculture & Tech., Westlands Campus, Nairobi-Kenya

Dr. SANJIV MITTAL

Professor & Dean, University School of Management Studies, GGS Indraprastha University, Delhi

Dr. NEPOMUCENO TIU

Chief Librarian & Professor, Lyceum of the Philippines University, Laguna, Philippines

Dr. RAJENDER GUPTA

Convener, Board of Studies in Economics, University of Jammu, Jammu

Dr. KAUP MOHAMED

Dean & Managing Director, London American City College/ICBEST, United Arab Emirates

Dr. DHANANJOY RAKSHIT

Dean, Faculty Council of PG Studies in Commerce and Professor & Head, Department of Commerce, Sidho-Kanho-Birsha University, Purulia

Dr. NAWAB ALI KHAN

Professor & Dean, Faculty of Commerce, Aligarh Muslim University, Aligarh, U.P.

Dr. ANA ŠTAMBUK

Head of Department of Statistics, Faculty of Economics, University of Rijeka, Rijeka, Croatia

SUNIL KUMAR KARWASRA

Principal, Aakash College of Education, ChanderKalan, Tohana, Fatehabad

Dr. SHIB SHANKAR ROY

Professor, Department of Marketing, University of Rajshahi, Rajshahi, Bangladesh

Dr. S. P. TIWARI

Head, Department of Economics & Rural Development, Dr. Ram Manohar Lohia Avadh University, Faizabad

Dr. SRINIVAS MADISHETTI

Professor, School of Business, Mzumbe University, Tanzania

Dr. ABHAY BANSAL

Head, Department of Information Technology, Amity School of Engg. & Tech., Amity University, Noida

Dr. ARAMIDE OLUFEMI KUNLE

Dean, Department of General Studies, The Polytechnic, Ibadan, Nigeria

Dr. ANIL CHANDHOK

Professor, University School of Business, Chandigarh University, Gharuan

RODRECK CHIRAU

Associate Professor, Botho University, Francistown, Botswana

Dr. OKAN VELI ŞAFAKLI

Associate Professor, European University of Lefke, Lefke, Cyprus

PARVEEN KHURANA

Associate Professor, Mukand Lal National College, Yamuna Nagar

Dr. KEVIN LOW LOCK TENG

Associate Professor, Deputy Dean, Universiti Tunku Abdul Rahman, Kampar, Perak, Malaysia

Dr. BORIS MILOVIC

Associate Professor, Faculty of Sport, Union Nikola Tesla University, Belgrade, Serbia

SHASHI KHURANA

Associate Professor, S. M. S. Khalsa Lubana Girls College, Barara, Ambala

Dr. IQBAL THONSE HAWALDAR

Associate Professor, College of Business Administration, Kingdom University, Bahrain

Dr. DEEPANJANA VARSHNEY

Associate Professor, Department of Business Administration, King Abdulaziz University, Saudi Arabia

Dr. MOHENDER KUMAR GUPTA

Associate Professor, Government College, Hodal

Dr. BIEMBA MALITI

Associate Professor, School of Business, The Copperbelt University, Main Campus, Zambia

Dr. ALEXANDER MOSESOV

Associate Professor, Kazakh-British Technical University (KBTU), Almaty, Kazakhstan

Dr. VIVEK CHAWLA

Associate Professor, Kurukshetra University, Kurukshetra

Dr. FERIT ÖLÇER

Professor & Head of Division of Management & Organization, Department of Business Administration, Faculty of Economics & Business Administration Sciences, Mustafa Kemal University, Turkey

Dr. ASHOK KUMAR CHAUHAN

Reader, Department of Economics, Kurukshetra University, Kurukshetra

Dr. RAJESH MODI

Faculty, Yanbu Industrial College, Kingdom of Saudi Arabia

YU-BING WANG

Faculty, department of Marketing, Feng Chia University, Taichung, Taiwan

Dr. SAMBHAVNA

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

Dr. KIARASH JAHANPOUR

Research Adviser, Farabi Institute of Higher Education, Mehrshahr, Karaj, Alborz Province, Iran

Dr. MELAKE TEWOLDE TECLEGHIORGIS

Faculty, College of Business & Economics, Department of Economics, Asmara, Eritrea

Dr. SHIVAKUMAR DEENE

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

Dr. THAMPOE MANAGALESWARAN

Faculty, Vavuniya Campus, University of Jaffna, Sri Lanka

Dr. VIKAS CHOUDHARY

Faculty, N.I.T. (University), Kurukshetra

SURAJ GAUDEL

BBA Program Coordinator, LA GRANDEE International College, Simalchaur - 8, Pokhara, Nepal

Dr. DILIP KUMAR JHA

Faculty, Department of Economics, Guru Ghasidas Vishwavidyalaya, Bilaspur

FORMER TECHNICAL ADVISOR**AMITA****FINANCIAL ADVISORS****DICKEN 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 the recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; 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; Rural Economics; Co-operation; Demography; Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour 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; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

Anybody can submit the **soft copy** of unpublished novel; original; empirical and high quality **research work/manuscript** **anytime** in **M.S. Word format** after preparing the same as per our **GUIDELINES FOR SUBMISSION**; at our email address i.e. infoijrcm@gmail.com or online by clicking the link **online submission** as given on our website ([FOR ONLINE SUBMISSION, CLICK HERE](#)).

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/Mkt./HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)

DEAR SIR/MADAM

Please find my submission of manuscript titled ' _____ ' for likely publication in one of your journals.

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

I affirm that all the co-authors of this manuscript have seen the submitted version of the manuscript and have agreed to inclusion of their names as co-authors.

Also, if my/our manuscript is accepted, I agree to comply with the formalities as given on the website of the journal. The Journal has discretion to publish our contribution in any of its journals.

NAME OF CORRESPONDING AUTHOR :
 Designation/Post* :
 Institution/College/University with full address & Pin Code :
 Residential address with Pin Code :
 Mobile Number (s) with country ISD code :
 Is WhatsApp or Viber active on your above noted Mobile Number (Yes/No) :
 Landline Number (s) with country ISD code :
 E-mail Address :
 Alternate E-mail Address :
 Nationality :

* i.e. Alumnus (Male Alumni), Alumna (Female Alumni), Student, Research Scholar (M. Phil), Research Scholar (Ph. D.), JRF, Research Assistant, Assistant Lecturer, Lecturer, Senior Lecturer, Junior Assistant Professor, Assistant Professor, Senior Assistant Professor, Co-ordinator, Reader, Associate Professor, Professor, Head, Vice-Principal, Dy. Director, Principal, Director, Dean, President, Vice Chancellor, Industry Designation etc. **The qualification of author is not acceptable for the purpose.**

NOTES:

- a) The whole manuscript has to be in **ONE MS WORD FILE** only, which will start from the covering letter, inside the manuscript. **pdf. version is liable to be rejected without any consideration.**
 - b) The sender is required to mention the following in the **SUBJECT COLUMN of the mail:**
New Manuscript for Review in the area of (e.g. Finance/Marketing/HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)
 - c) There is no need to give any text in the body of the 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 expected to be below **1000 KB**.
 - e) Only the **Abstract 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 within twenty-four hours** and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of the manuscript, within two days of its submission, the corresponding author is required to demand for the same by sending a separate mail to the journal.
 - g) The author (s) name or details should not appear anywhere on the body of the manuscript, except on the covering letter and the cover page of the manuscript, in the manner as mentioned in the guidelines.
2. **MANUSCRIPT TITLE:** The title of the paper should be typed in **bold letters, centered and fully capitalised**.
 3. **AUTHOR NAME (S) & AFFILIATIONS:** Author (s) **name, designation, affiliation (s), address, mobile/landline number (s), and email/alternate email address** should be given underneath the title.
 4. **ACKNOWLEDGMENTS:** Acknowledgements can be given to reviewers, guides, funding institutions, etc., if any.
 5. **ABSTRACT:** Abstract should be in **fully italic printing**, ranging between **150 to 300 words**. The abstract must be informative and elucidating the background, aims, methods, results & conclusion in a **SINGLE PARA. Abbreviations must be mentioned in full.**
 6. **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 stop at the end. All words of the keywords, including the first one should be in small letters, except special words e.g. name of the Countries, abbreviations etc.
 7. **JEL CODE:** Provide the appropriate Journal of Economic Literature Classification System code (s). JEL codes are available at www.aea-web.org/econlit/jelCodes.php. However, mentioning of JEL Code is not mandatory.
 8. **MANUSCRIPT:** Manuscript must be in **BRITISH ENGLISH** prepared on a standard A4 size **PORTRAIT SETTING PAPER. It should be free from any errors i.e. grammatical, spelling or punctuation. It must be thoroughly edited at your end.**
 9. **HEADINGS:** All the headings must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.
 10. **SUB-HEADINGS:** All the sub-headings must be bold-faced, aligned left and fully capitalised.
 11. **MAIN TEXT:**

THE MAIN TEXT SHOULD FOLLOW THE FOLLOWING SEQUENCE:**INTRODUCTION****REVIEW OF LITERATURE****NEED/IMPORTANCE OF THE STUDY****STATEMENT OF THE PROBLEM****OBJECTIVES****HYPOTHESIS (ES)****RESEARCH METHODOLOGY****RESULTS & DISCUSSION****FINDINGS****RECOMMENDATIONS/SUGGESTIONS****CONCLUSIONS****LIMITATIONS****SCOPE FOR FURTHER RESEARCH****REFERENCES****APPENDIX/ANNEXURE****The manuscript should preferably be in 2000 to 5000 WORDS, But the limits can vary depending on the nature of the manuscript.**

12. **FIGURES & TABLES:** These should be simple, crystal **CLEAR, centered, separately numbered** & self-explained, and the **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.**
13. **EQUATIONS/FORMULAE:** These should be consecutively numbered in parenthesis, left aligned with equation/formulae number placed at the right. The equation editor provided with standard versions of Microsoft Word may be utilised. If any other equation editor is utilised, author must confirm that these equations may be viewed and edited in versions of Microsoft Office that does not have the editor.
14. **ACRONYMS:** These should not be used in the abstract. The use of acronyms is elsewhere is acceptable. Acronyms should be defined on its first use in each section e.g. Reserve Bank of India (RBI). Acronyms should be redefined on first use in subsequent sections.
15. **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 may follow Harvard Style of Referencing. **Also check to ensure that everything that you are including in the reference section is duly cited in the paper.** 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 italic printing. 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 parenthesis.
 - **Headers, footers, endnotes and footnotes should not be used in the document.** However, **you can mention short notes to elucidate some specific point**, which may be placed in number orders before the references.

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, 19–23

UNPUBLISHED DISSERTATIONS

- 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 Gas Policy, Political Weekly, Viewed on January 01, 2012 <http://epw.in/user/viewabstract.jsp>

IDENTIFICATION OF SIGNIFICANT FINANCIAL RATIOS FOR DIAGNOSIS OF FINANCIAL DISTRESS IN INDIAN POWER INDUSTRIES BY PARALLEL ANALYSIS USING MONTE CARLO SIMULATION

PARAG RAY
STUDENT
SCHOOL OF MANAGEMENT
NATIONAL INSTITUTE OF TECHNOLOGY
WARANGAL

DR. G. SUNITHA
ASST. PROFESSOR
SCHOOL OF MANAGEMENT
NATIONAL INSTITUTE OF TECHNOLOGY
WARANGAL

ABSTRACT

The main aim of the research paper is to identify the most impactful ratios in financial distress diagnosis with reference to Indian power Industries. Parallel Analysis is used to drag these ratios from the bulk of financial ratios present in financial statements. By the usage of 30 financial ratios from the respective industry this paper has tried to explore the most significant ratios which have reliable characteristics in Screening the financial distress in Indian power sectors. With the base concept of Monte Carlo Simulation the analysis has been conducted by 1000 to 10000 iteration in the analysis. Parallel Analysis used this simulation considering two cases such as for normally distributed raw data set and for permutation of raw data set.

KEYWORDS

parallel analysis, monte carlo simulation, financial distress, normally distributed data set.

INTRODUCTION

Power sector is one of the most delightful sectors for the economic growth and welfare of nations. The growth of Indian economy is directly dependent on this sector. The power sector is the biggest contributor to Indian GDP. The diversification of this sector through the globe is noticeable. This sector is playing a vital role in creating thousands of job in the country.

The scenario of power generation in India along with installation rate in a year is in imbalance position. The installation capacity has been increasing drastically from 2007 to 2016 as well as the power generation. But surprisingly the Compound Annual Growth Rate (CAGR) says the opposite things. It says since 2007 to 2016 the rate of increment in capacity installation is more than rate of increment of power generation rate. The CAGR of power generation 2010-2016 was 6.21% where the capacity installation rate is 8.7%.

In a healthy condition the growth rate of former one should be more than the later one. But the research says the opposite things. This made the researcher thing about the restriction causing factors in generating sufficient power and energy as per requirement. It drags my attention to study and research on this particular sector for identifying the level of sickness and bad health along with the meaning instrument for it.

RESEARCH OBJECTIVES

In this research paper the main objective is to diagnosis the most significant financial ratios those can able to identify the distress in registered power industries in India.

Hence, the respective objectives of the paper are,

1. To identify the most significant financial ratios which have noticeable impact on distress diagnosis.
2. To identify the impactful financial ratios by parallel analysis on basis of montecarlo simulation.

DATA SOURCE

All the data used in the research work have been collected from BSE and NSE websites and BFIR online portal. As the total data set contains 50 companies (sample size), all belongs to power industry of India. Among these data set 35 companies are healthy companies whose financial data have been taken from BSE and NSE sites as all are registered companies and rest of 15 companies are financially distressed industry as they are registered in BFIR for restructuring.

LITERATURE REVIEW

Anderson (1963) has expressed in his work that factor analysis is studied to determine the most informative ratios. We can delete or void those ratios having less loading factors in comparison to others and having quite similar characteristics with rest ratios. A smaller set of variable can be formed by this tool to make the analysis process easier and make the decision making process and investigation process easier.

Beaver (1966) studied by using the financial ratios, by collecting the ratios from respective company's financial statement to predict failure. The main aim and objective was to develop the predictive ability of financial statement in providing empirical proof to the health of the particular industry.

Coak (2005) told the sample size for a factor analysis should be 100. But afterwards it can be considered more than 30 data or variables for effectiveness of factor analysis.

Chen and Shimerda (1981), Laurent, (1979) and Pohlman and Hollinger (1981) had used component analysis and or canonical correlation analysis to separate more impactful ratios from the ratios having very less impact. This causes limitation to multi co linearity among the selected financial ratios for the selection of most useful ratios in financial distress prediction.

Laitinen & Kankaanpaa (1999) used Discriminant Analysis instead of Logistic Analysis for a better efficient result in prediction of accuracy in terms of classifying healthy and unhealthy industries with their respective predicting variables.

Zaygren (1985) had expressed the information theory, probability estimates generated by financial ratio analysis are messages from an information system and the amount of information in each message is computed by its ability to reduce uncertainty.

METHODOLOGY

In this research Indian registered power industries are considered in which 35 healthy and 15 unhealthy industries are included. The data set covers 10 years of data. In case of independent variables 30 financial ratios have been considered. Parallel Analysis is done for estimate the most significant ratios by their Eigen

values having the influence of Mean of the data set and Percentile (95%).The base concept of this analysis is Monte Carlo simulation having more than 1000 times iteration.

For analysis of the data set IBM SPSS has been used. All experiment results in this report are done by using IBM SPSS Statistics 20.0 and Microsoft Excel.

The analytical method is as follows:

PARALLEL ANALYSIS (MONTE CARLO SIMULATION)

Parallel analysis is a method for determining the number of components or factors to be retained from Factor Analysis. Most essentially the program works by creating a random dataset with the same types of observations and variables. The parallel analysis is conducted by taking two conditions such as For Normally Distributed Random Data Generation and for Permutations of the Raw Data Set. The former method wants the normally distributed data set where the later one wants the raw data set. The maximum iteration scope can make this analysis so effective in its output and its efficiency. In both the cases the analysis has considered 50th percentile and 95th percentile for Eigen value consideration and comparison of it with raw data Eigen value.

THE ANALYSIS: PARALLEL ANALYSIS AND INTERPRETATION

TABLE 1: FOR NORMALLY DISTRIBUTED RANDOM DATA GENERATION PARALLEL ANALYSIS

Variables	Raw Data	Means	Percentile
EPS	8.939	2.823	3.119
BVPS	5.633	2.515	2.724
RenPS	4.736	2.287	2.453
PBDITPS	2.513	2.100	2.246
PBITPS	2.053	1.935	2.064
PBTPS	1.280	1.787	1.908
NPPS	1.079	1.652	1.630
DPS	0.946	1.527	1.631
RNPE	0.742	1.409	1.506
RCE	0.694	1.300	1.394
ROA	0.476	1.198	1.285
DER	0.351	1.102	1.187
ATR	0.183	1.012	1.093
CR	0.130	0.927	1.005
QR	0.103	0.845	0.920
ITR	0.047	0.768	0.840
DPR	0.037	0.696	0.764
EVPOR	0.021	0.628	0.695
EVPEBITD	0.012	0.564	0.626
MCPOR	0.008	0.503	0.562
RR	0.003	0.446	0.502
PPBV	0.002	0.392	0.445
PPNR	0.001	0.342	0.393
BVPSexR	0.000	0.295	0.342
PBDITM	0.000	0.250	0.295
PBITM	0.000	0.209	0.250
PBTM	0.000	0.171	0.208
NPM	0.000	0.135	0.170
ERR	0.000	0.101	0.133
CERR	0.000	0.067	0.096

GRAPH 1

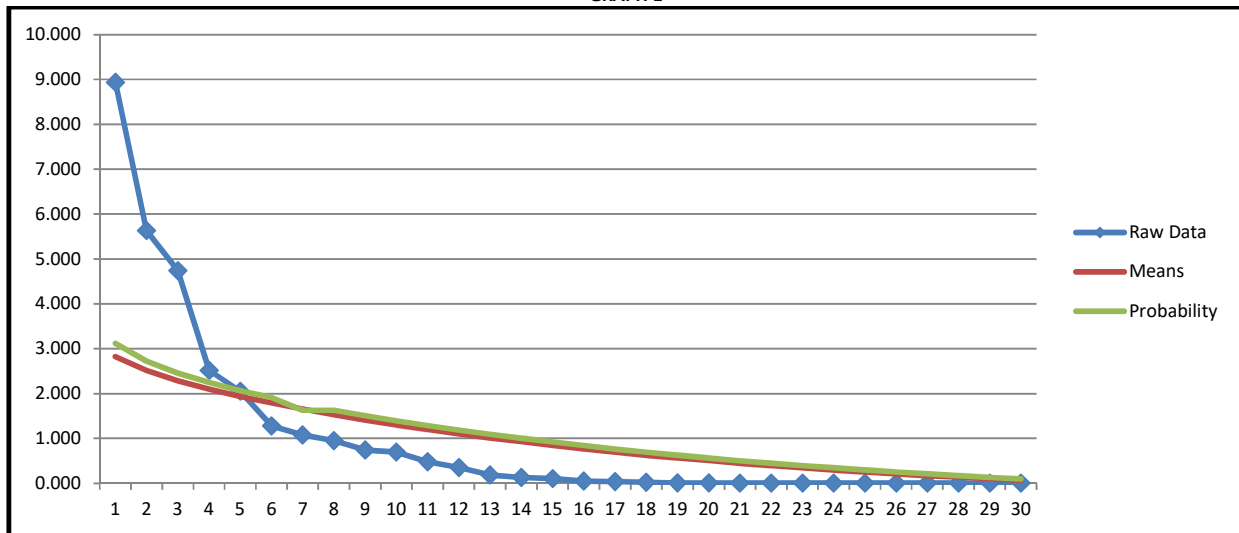
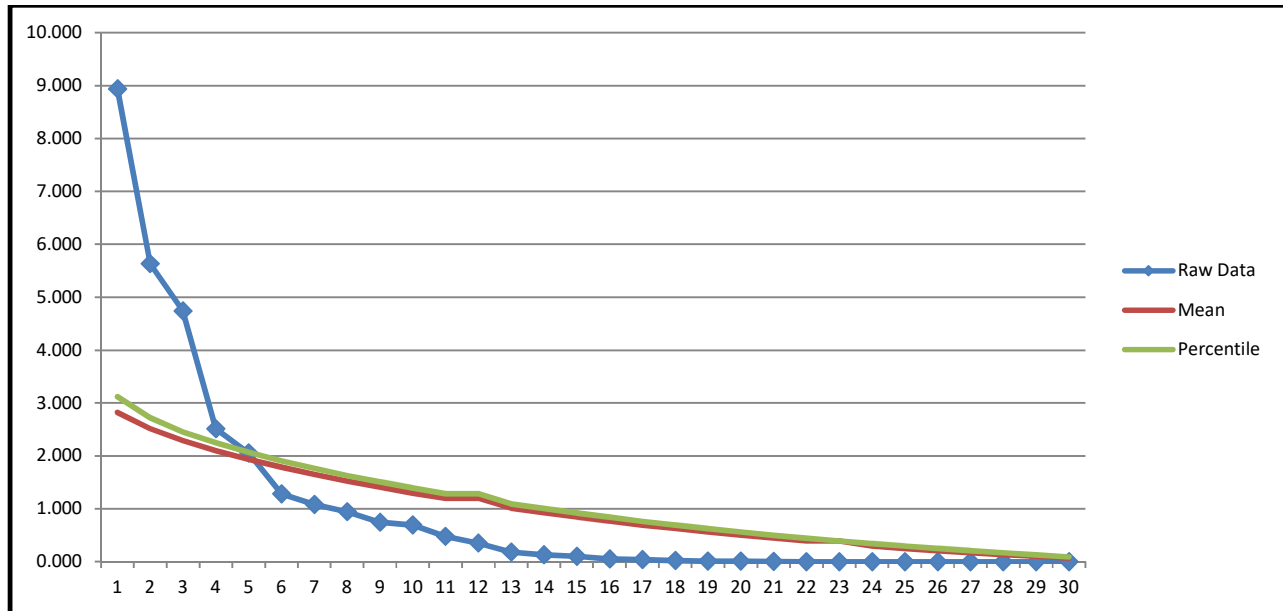


TABLE 2: FOR PERMUTATIONS OF THE RAW DATA SET

Variables	Raw Data	Mean	Percentile
EPS	8.939	2.823	3.119
BVPS	5.633	2.515	2.724
RenPS	4.736	2.287	2.453
PBDITPS	2.513	2.100	2.246
PBITPS	2.053	1.935	2.064
PBTPS	1.280	1.787	1.908
NPPS	1.079	1.652	1.763
DPS	0.946	1.527	1.630
RNPE	0.742	1.409	1.506
RCE	0.694	1.300	1.394
ROA	0.476	1.198	1.285
DER	0.351	1.198	1.285
ATR	0.183	1.012	1.093
CR	0.130	0.927	1.005
QR	0.103	0.845	0.920
ITR	0.047	0.768	0.840
DPR	0.037	0.696	0.764
EVPOR	0.021	0.628	0.695
EVPEBITD	0.012	0.564	0.626
MCPOR	0.008	0.503	0.562
RR	0.003	0.446	0.502
PPBV	0.001	0.392	0.445
PPNR	0.001	0.392	0.393
BVPSEXR	0.000	0.295	0.342
PBDITM	0.000	0.250	0.295
PBITM	0.000	0.209	0.250
PBTM	0.000	0.171	0.208
NPM	0.000	0.135	0.170
ERR	0.000	0.101	0.132
CERR	0.000	0.067	0.090

GRAPH 3



Parallel analysis is done to estimate the most significant ratios for analysis by estimating Principal component analysis having two statistical conditions by simulation under Monte Carlo simulation. The raw data in the table 1 and table 2 are the Eigen value from the real data co relation matrix calculated in PCA in IBM SPSS. The mean contains the Eigen value associated with the Monte Carlo Simulations in case of first variable is 2.823 in parallel analysis. The percentile column in case of first variable has the value of 3.119. It has been considered that Mean is 50th percentile and percentile is 95th percentile. So as per the standardized valuation the 95th percentile Eigen Value is always be greater than 50th percentile value. Here in case of first variable i.e. 3.119 is greater than 2.823.

If the Raw data column having the Eigen value will be more than the 95 percentile Eigen value i.e. Percentile column Eigen value then we can say it is statistically significant Eigen value. So similarly in case of first case 8.939 is greater than 3.119.

After the parallel analysis in case of first 4 variables the raw data Eigen value is greater than 95th percentile Eigen value that signifies these variables have a significant impact on the depended variables. That means these financial ratios can have the ability in predicting the dependent variable status. Those variables are Earning Per Share, Book Value Per Share, Revenue From Operation Per Share and Profit Before Depreciation Interest Tax Per Share.

From the 5th to 30th ratios or variables the Eigen value of Raw data is less than the Eigen value of 95th percentile i.e. percentile so these ratios does not have noticeable impact on the dependent variables.

We will find the syntax will produce a Scree plot having two more lines intersecting the Scree plot. The Scree plot is the line connecting the real data Eigen value from correlation matrix. Above the intersection point the Eigen values and the respective variables are the most considerable variables for decision making. The lower intersecting line is the 50th percentile line and the higher line is the 95th percentile line.

This parallel analysis can be done in two approaches first one Table 1 is the output of first method i.e. For Normally Distributed Random Data Generation Parallel Analysis and the Table 2 contains the output of second approaches i.e. For Permutations of the Raw Data Set. Both the approaches give the very similar output with same syntax representation as Scree plot. But the difference is the later one is the lengthy and time taking traditional approach where the former one is modern approaches. In the both the cases the output is very reliable and effective just because of the output is generated by 1000 simulation to 10000 simulations as per the number of data and variables this research has.

CONCLUSION

The statistical simulation process instead of traditional data reduction techniques can have the ability to give best result in terms of independent variables selection which are the most significant enough for decision making. The above statistical analysis included maximum 10000 iteration process for finding the best output. As a result, the power industry in India can easily estimate their financial health by considering only 4 variables instead of going all the 30 ratios. As the analysis has mathematical proof with it we can rely on it. Ultimately after the estimation of financial status we can go for proper restructuring and revival measure can be taken to prevent financial distress and bankruptcy scope from Indian power and energy sectors.

REFERENCES

1. A. Damodaran, "Equity Risk Premiums (ERP): Determinants, Estimation and Implications," Stern School of Business, Working Paper 2012.
2. F. Black and M. Scholes, "The Pricing of Options and Corporate Liabilities," *Journal of Political Economy*, vol. 81, no. 3, pp. 637-654, 1973.
3. F. Black, "How to Use the Holes in Black-Scholes," *Journal of Applied Corporate Finance*, vol. 1, no. 4, pp. 67-73, 1989.
4. J.B. Williams, *The Theory of Investment Value*: Harvard University Press, 1938.
5. J.C. Cox, S.A. Ross, and M. Rubinstein, "Option Pricing: A Simplified Approach," *Journal of Financial Economics*, vol. 7, no. 3, pp. 229-263, 1979.
6. M.E.H. Pedersen, "Introduction to Share Buyback Valuation," Hvas Laboratories, Report HL-1301, 2013. [Online]. <http://www.hvass-labs.org/people/magnus/publications/pedersen2013share-buybackintro.pdf>
7. M.E.H. Pedersen, "The Value of Share Buybacks," Hvas Laboratories, Report HL-1201, 2012. [Online]. <http://www.hvass-labs.org/people/magnus/publications/pedersen2012share-buyback.pdf>
8. P. Glasserman, "Monte Carlo Methods in Financial Engineering". Springer, 2003.
9. P.B. Hammond, M.L. Leibowitz, and L.B. Siegel, Eds., "Rethinking the Equity Risk Premium" Research Foundation of CFA Institute, 2011.
10. R.C. Merton, "Theory of Rational Option Pricing," *Bell Journal of Economics and Management Science*, vol. 4, no. 1, pp. 141-183, 1973.
11. R.G. Newell and W.A. Pizer, "Discounting the Distant Future: How Much Do Uncertain Rates Increase Valuations?," *Journal of Environmental Economics and Management*, vol. 46, pp. 52-71, 2003.
12. S. Homer and R. Sylla, "A History of Interest Rates", 4th ed.: John Wiley & Sons, 2005.
13. W.E. Buffett, "Letter to Shareholders of Berkshire Hathaway," February 27, 2009.

REQUEST FOR FEEDBACK

Dear Readers

At the very outset, International Journal of Research in Commerce, Economics & 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 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.

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward to an appropriate consideration.

With sincere regards

Thanking you profoundly

Academically yours

Sd/-

Co-ordinator

DISCLAIMER

The information and opinions presented in the Journal reflect the views of the authors and not of the Journal or its Editorial Board or the Publishers/Editors. Publication does not constitute endorsement by the journal. Neither the Journal nor its publishers/Editors/Editorial Board nor anyone else involved in creating, producing or delivering the journal or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in the journal, nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of information/material contained in the journal. The journal, neither its publishers/Editors/ Editorial Board, nor any other party involved in the preparation of material contained in the journal represents or warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such material. Readers are encouraged to confirm the information contained herein with other sources. The responsibility of the contents and the opinions expressed in this journal are exclusively of the author (s) concerned.

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

