



INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION AND MANAGEMENT

CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	FEASIBILITY STUDY OF E-SERVICING ON IRANIAN MUNICIPALITIES (G2C): A CASE STUDY OF AHWAZ MUNICIPALITY <i>DR. MEHRDAD ALIPOUR & SHAHIN KOLIVAND AVARZAMANI</i>	1
2.	ANALYSIS OF MOBILE AGENT BASED E-SUPPLY CHAIN MANAGEMENT SYSTEM USING QUEUING THEORY: A COMPARATIVE STUDY BETWEEN M/M/1 AND M/D/1 MODELS <i>DR. RIKTESH SRIVASTAVA</i>	7
3.	PREPARING PRE-SERVICE TEACHERS TO INTEGRATE EDUCATIONAL TECHNOLOGY IN THE COLLEGES OF EDUCATION CURRICULUM IN THE CENTRAL REGION OF GHANA <i>ABREH MIGHT KOJO</i>	18
4.	THE RELATIONSHIP BETWEEN THE INFORMAL AND FORMAL FINANCIAL SECTOR IN NIGERIA: A CASE STUDY OF SELECTED GROUPS IN LAGOS METROPOLIS <i>ABIOLA BABAJIDE</i>	24
5.	AN APPRAISAL OF SERVICE QUALITY MANAGEMENT IN MANAGEMENT EDUCATION INSTITUTIONS: A FACTOR ANALYSIS <i>DR. BHANWAR SINGH RAJPUROHIT, DR. RAJ KUMAR SHARMA & GOPAL SINGH LATWAL</i>	33
6.	AN EFFECTIVE TOOL FOR BETTER SOFTWARE PRODUCT <i>DR. V.S.P. SRIVASTAV & PIYUSH PRAKASH</i>	44
7.	HUMAN RESOURCE MANAGEMENT ISSUES FOR IMPROVING THE QUALITY OF CARE IN HEALTH SECTOR: AN EMPIRICAL STUDY <i>SAJI MON M.R., N.MUTHUKRISHNAN & DR. D.S. CHAUBEY</i>	49
8.	THE EFFECT OF E-MARKETING AND ITS ENVIRONMENT ON THE MARKETING PERFORMANCE OF MEDIUM AND LARGE FINANCIAL SERVICE ENTERPRISES IN ETHIOPIA <i>TEMESGEN BELAYNEH ZERIHUN & DR. V. SHEKHAR</i>	57
9.	ERGONOMICS RELATED CHANGES ON TRADITIONAL BANKS IN KERALA CONSEQUENT ON CHANGES IN TECHNOLOGY AND ITS IMPACT ON EMPLOYEES <i>DR. P. M. FEROSE</i>	66
10.	MODERN FACES OF FINANCIAL CRIMES IN ELECTRONIC BANKING SYSTEM <i>VIKAS SHARMA</i>	70
11.	QUALITY OF SERVICE (QOS) BASED SCHEDULING ENVIRONMENT MODEL IN WIMAX NETWORK WITH OPNET MODELER <i>ARUN KUMAR, DR. A K GARG & ASHISH CHOPRA</i>	73
12.	A DECENTRALIZED INDEXING AND PROBING SPATIAL DATA IN P2P SYSTEM <i>T. MAHESHWARI & M. RAVINDER</i>	78
13.	CONVERGENCE TO IFRS - AN INDIAN PERSPECTIVE <i>CA SHOBANA SWAMYNATHAN & DR. SINDHU</i>	81
14.	COMPARING EFFICIENCY AND PRODUCTIVITY OF THE INDIAN AUTOMOBILE FIRMS – A MALMQUIST –META FRONTIER APPROACH <i>DR. A. VIJAYAKUMAR</i>	86
15.	EMERGING TRENDS IN KNOWLEDGE MANAGEMENT IN BANKING SECTOR <i>DR. DEEPIKA JINDAL & VIVEK BHAMBRI</i>	93
16.	A STUDY ON CONSUMER ACCEPTANCE OF M-BANKING IN TIRUCHIRAPPALLI CITY <i>S. MOHAMED ILIYAS</i>	97
17.	TECHNICAL ANALYSIS AS SHORT TERM TRADING STRATEGY IN THE INDIAN STOCK MARKET- AN EMPIRICAL EVIDENCE IN THE PUBLIC SECTOR BANKS <i>S. VASANTHA</i>	102
18.	SOFTWARE DEFECTS IDENTIFICATION, PREVENTIONS AND AMPLIFICATION IN SDLC PHASES <i>BHOJRAJ HANUMANT BARHATE</i>	114
19.	A STUDY ON TIME MANAGEMENT IN EMERGENCY DEPARTMENT THROUGH NETWORK ANALYSIS IN A CORPORATE HOSPITAL <i>DR. L. KALYAN VISWANATH REDDY & HENA CHOWKS</i>	118
20.	MAINTAINING CENTRALIZED BANK INFORMATION FOR GETTING QUICK ACCESS OF INFORMATION OF ALL OTHER ACCOUNTS USING DENORMALIZATION OF DATABASE CONCEPT OF COMPUTER <i>AMIT NIVARGIKAR & PRIYANKA JOSHI</i>	124
21.	DIGITAL OPPORTUNITIES IN NORTH INDIA: A STUDY ON DIGITAL OPPORTUNITY PARAMETERS AMONG NORTH INDIAN STATES <i>DEEP MALA SIHINT</i>	126
22.	BUSINESS ETHICS & GOVERNANCE <i>ARIF SULTAN, FATI SHAFAT & NEETU SINGH</i>	131
23.	EMPLOYEES' PERCEPTION ON TRAINING AND DEVELOPMENT (A STUDY WITH REFERENCE TO EASTERN POWER DISTRIBUTION OF AP LIMITED) <i>DR. M. RAMESH</i>	134
24.	AN OPTIMAL BROKER-BASED ARCHITECTURE FOR TRANSACTIONAL AND QUALITY DRIVEN WEB SERVICES COMPOSITION <i>KAVYA JOHNY</i>	140
25.	WEB USAGE MINING: A BOON FOR WEB DESIGNERS <i>RITIKA ARORA</i>	148
	REQUEST FOR FEEDBACK	151

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

Indexed & Listed at: [Ulrich's Periodicals Directory ©, ProQuest, U.S.A.](#), [Index Copernicus Publishers Panel, Poland](#), [Open J-Gate, India](#),

[EBSCO Publishing, U.S.A.](#), as well as in [Cabell's Directories of Publishing Opportunities, U.S.A.](#)

Circulated all over the world & Google has verified that scholars of more than Hundred & Eighteen 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

www.ijrcm.org.in

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

PATRON

SH. RAM BHAJAN AGGARWAL

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

CO-ORDINATOR

MOHITA

Faculty, Yamuna Institute of Engineering & Technology, Village Gadholi, P. O. Gadholi, Yamunanagar

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. 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

MOHITA

Faculty, Yamuna Institute of Engineering & Technology, Village Gadholi, P. O. Gadholi, Yamunanagar

EDITORIAL ADVISORY BOARD

DR. RAJESH MODI

Faculty, Yanbu Industrial College, Kingdom of Saudi Arabia

PROF. PARVEEN KUMAR

Director, M.C.A., Meerut Institute of Engineering & Technology, Meerut, U. P.

PROF. H. R. SHARMA

Director, Chhatrapati Shivaji Institute of Technology, Durg, C.G.

PROF. MANOHAR LAL

Director & Chairman, School of Information & Computer Sciences, I.G.N.O.U., New Delhi

PROF. ANIL K. SAINI

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

PROF. R. K. CHOUDHARY

Director, Asia Pacific Institute of Information Technology, Panipat

DR. ASHWANI KUSH

Head, Computer Science, University College, Kurukshetra University, Kurukshetra

DR. BHARAT BHUSHAN

Head, Department of Computer Science & Applications, Guru Nanak Khalsa College, Yamunanagar

DR. VIJAYPAL SINGH DHAKA

Head, Department of Computer Applications, Institute of Management Studies, Noida, U.P.

DR. SAMBHAVNA

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

DR. MOHINDER CHAND

Associate Professor, Kurukshetra University, Kurukshetra

DR. MOHENDER KUMAR GUPTA

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

DR. SAMBHAV GARG

Faculty, M. M. Institute of Management, Maharishi Markandeshwar University, Mullana

DR. SHIVAKUMAR DEENE

Asst. Professor, Government F. G. College Chitguppa, Bidar, Karnataka

DR. BHAVET

Faculty, M. M. Institute of Management, Maharishi Markandeshwar University, Mullana

ASSOCIATE EDITORS**PROF. ABHAY BANSAL**

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

PROF. NAWAB ALI KHAN

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

DR. ASHOK KUMAR

Head, Department of Electronics, D. A. V. College (Lahore), Ambala City

ASHISH CHOPRA

Sr. Lecturer, Doon Valley Institute of Engineering & Technology, Karnal

SAKET BHARDWAJ

Lecturer, Haryana Engineering College, Jagadhri

TECHNICAL ADVISORS**AMITA**

Faculty, Government M. S., Mohali

MOHITA

Faculty, Yamuna Institute of Engineering & Technology, Village Gadholi, P. O. Gadholi, Yamunanagar

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, 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; Business 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 addresses: 1 or info@ijrcm.org.in.

GUIDELINES FOR SUBMISSION OF MANUSCRIPT

1. **COVERING LETTER FOR SUBMISSION:**

DATED: _____

THE EDITOR

IJRCM

Subject: SUBMISSION OF MANUSCRIPT IN THE AREA OF

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

DEAR SIR/MADAM

Please find my submission of manuscript titled ' _____ ' 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 anywhere.

I affirm that all 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 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:

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 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 the 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, 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 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.

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.

WEBSITE

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on December 17, 2011 <http://epw.in/user/viewabstract.jsp>

TECHNICAL ANALYSIS AS SHORT TERM TRADING STRATEGY IN THE INDIAN STOCK MARKET- AN EMPIRICAL EVIDENCE IN THE PUBLIC SECTOR BANKS

S. VASANTHA
ASST. PROFESSOR
SCHOOL OF MANAGEMENT STUDIES
VELS UNIVERSITY
CHENNAI

ABSTRACT

Stock prices fluctuate widely in the market. The stock prices are determined by the supply of and demand for securities. It is very difficult to predict stock market behavior. It is driven by media news, corporate announcements and emotions of people. It can influence the price in either direction by up and down, Positive or upward trends are considered as bull markets; negative or down ward trends are referred to as bear markets. Technical analysis is useful for predicting the short-term price movements of stocks through various technical indicators. This paper attempts to study the short term price fluctuations through the use of Relative Strength Index, Rate of Change, Breadth of the Market, charts and quantitative techniques without considering the company's financial prospects. The technical analysis has been done for Punjab National Bank and Bank of Baroda, which helps the investors to make short term investment decision. The Punjab National Bank and Bank of Baroda scripts price movements were compared with NSE index to facilitate benchmarking comparison. The analysis has been done for the period of 4 months to study the short term period price fluctuations. The chart makes it easier for the investor to analyze correctly the technical position of stock. It also analyzes the advances and declines that have occurred in the stock market by comparing NSE as a bench marking technique. The researcher has made an attempt to emphasize the technical strength and weakness of Punjab National Bank and Bank of Baroda scripts through various technical indicators.

KEYWORDS

Charts, Public sector Bank, Investors, Short-term price fluctuation, Technical analysis.

INTRODUCTION

Technical analysis is the study of market price movement, primarily through the use of charts, for the purpose of forecasting future price trends". Technical analysis is a method of evaluating securities by analyzing the statistics generated by market activity, such as past prices and volume. Technical analysts do not attempt to measure a security's intrinsic value, but instead use charts and other tools to identify patterns that can suggest future activity. Just as there are many investment styles on the fundamental side, there are also many different types of technical traders. Some rely on chart patterns; others use technical indicators and oscillators, and most use some combination of the two. In any case, technical analysts' exclusive use of historical price and volume data is what separates them from their fundamental counterparts. Technical analysis is based on historical data, but the limitation is that the past is not always an indication of future results, calling into question the validity of technical analysis. The short term investment decision based on technical analysis may not be give correct result because technical analysis is subjective and cannot be used to make consistent decision. Signals that indicate action in technical analysis may change over a period of time.

CHART PATTERNS IS A INDICATOR OF SHORT TERM PRICE MOVEMENT

Chart patterns is one of the important technical indicator used to study short term price movement of share. Chart patterns are graphical representations of historical stock price movement which form repeating patterns or shapes, and are commonly employed in the stock market. Technical analysis is the study of historical price to determine future trading strategies. Trading with technical analysis requires correctly identifying chart patterns. Chart patterns are useful gauges of momentum, support and resistance, and other indications of strength or weakness in a stock. Chart patterns help traders to determine market direction as well as time entries and exits. Technical analysts believe that price behavior repeat itself and therefore it is predictable by extrapolating past patterns.

REVIEW OF LITERATURE

Pinches (1970), presented a more general statement of technical analysis is as follows: 1) the market value of a security solely depends on the supply and demand of the particular security. 2) Supply and demand forces at any moment depends on many reasons, both rational and irrational. Information, opinions, moods, guesses and blind needs integrate in the price discovery process. No individual can hope to grasp and weigh them all; market automatically performs this. 3) Excepting minor variations, prices move in trends that persist for some periods. 4) Changes in trend signal an important shift in the balance between supply and demand and the same are detectable eventually in the market prices.

Bessembinder H. and Chan K (1998), also found that simple forms of technical analysis contain significant power for US stock index returns. However, they cautioned that transaction costs are main hindrance in profitable opportunity from technical trades. They commented it is unlikely that trade could have used technical rules evaluated by Brock and others to improve returns net of trading costs.

Thomsett, M. C (1998), said fundamental analysts often measure price by using a discounted cash flow model of future expected earnings. This approach relies on research into basic financial information to forecast profits, supply and demand, industry strength, management ability, and other intrinsic matters affecting a security's market value and growth potential.

Edwards, R. D. Magee, J (2001), observed technical analysis relies on chart pattern recognition and attempts to anticipate the direction of a price movement through comparison with similar historical chart patterns. This approach assumes that security prices are determined solely by the interaction of market demand and supply, that prices tend to move in trends, that shifts in demand and supply cause trend reversals that can be detected in charts, and that chart patterns repeat themselves.

Nath (2001), found presence of long-term memory while analyzing stocks traded in the Indian stock market. He found that movement of stock prices in India does not follow a random movement.

Singh & Prabakaran (2008), studied the returns of the Indian stock markets using various statistical tests. They found the presence of dependencies and memory feedbacks in the returns of Indian stock market. They performed Rescaled range analysis to estimate Hurst's exponent and found that the Indian capital markets are not random.

Mitra (2010), analyzed the profitability of moving average based trading rules in the Indian stock market using four stock index series. The study found that most technical trading rules are able to capture market movements in Indian stock market reasonably well and give significant positive returns. However, these returns are not exploitable fully because of real world transaction costs

OBJECTIVES OF THE STUDY

- To examine the short-term price movement of selective banking sector scripts namely Punjab National Bank and Bank of Baroda through technical indicators.
- To find out the advance and decline that has occurred in the stock market by comparing NSE as a bench marking technique.
- To formulate buying and selling strategy for Punjab National Bank and Bank of Baroda through various technical indicators.

RESEARCH METHODOLOGY

METHODS OF DATA COLLECTION

For this purpose some data have been collected basically from secondary sources:

SECONDARY SOURCE

Since the study is mainly focused on short-term price movement of banking sector stock through technical analysis for 4 months and the researcher had given immense importance to collect secondary data from various investment websites. Two public sector banks were considered to analyze the short-term price movement of the company.

- Punjab National Bank
- Bank of Baroda

TOOLS AND TECHNIQUES USED

The following tools were applied to analysis the short-term price movement of selective banking sector scripts through technical analysis:

TECHNICAL INDICATORS

1. Relative Strength Index
2. Rate Of Change
3. Breadth of the Market.

STATISTICAL TOOLS

1. Beta and alpha
2. Correlation
3. Simple and Exponential Moving Average.

ANALYSIS OF FINANCIAL TOOLS

RELATIVE STRENGTH INDEX

It is an oscillator used to identify the inherent technical strength and weakness of a particular scrip or market. RSI can be calculated for a script by adopting the following formula.

$$RSI = 100 - \left[\frac{100}{1 + R_s} \right]$$

$$R_s = \frac{\text{Average Gain Per Day}}{\text{Average Loss Per Day}}$$

The RSI can be calculated for any number of days depending on the wish of the technical analyst and the time frame of trading adopted in a particular stock market.

RATE OF CHANGE

Rate of change indicator or ROC measure the rate of change between the current price and the price 'n' number of days in the past. ROC helps to find out the overbought and oversold position of a script. It is also useful in identifying the trend reversal. Closing prices are used to calculate the ROC.

$$ROC I = \frac{\text{Today's Price} - \text{Price 'n' days back}}{\text{Price 'n' days back}} \times 100$$

$$ROC II = \frac{\text{Today's Price} - \text{Price 'n' days back}}{\text{Price 'n' days back}} \times 100 - 100$$

BREADTH OF THE MARKET

The breadth of market is the term often used to study the advances and declines that have occurred in the stock market. Advances mean the number of shares whose price has increased from the previous day's trading. Decline indicates the number of shares whose prices have fallen from the previous day's trading. The net difference between the number of stocks advanced and declined during the same period is the "BREADTH OF THE MARKET". A cumulative index of net difference measures the market breadth.

BETA

Beta is the slope of the characteristic regression line. Beta describes the relationship between the stock's return and the index return.

$$\beta = \frac{n \sum xy - (\sum x)(\sum y)}{n \sum x^2 - (\sum x)^2}$$

ALPHA

The intercept of the characteristic regression line is alpha i.e. the distance between the intersection and the horizontal axis. It indicates that the stock return is independent of the market return.

$$\alpha = Y - \beta X$$

CORRELATION

Correlation is an analysis of the co variation between two or more variables. The correlation co-efficient measures the nature and the extent of relationship between the stock market index return and stock return in a particular period.

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

MOVING AVERAGE

Moving average method is a simple device of reducing fluctuations and obtaining trend values with a fair degree of accuracy.. In this study two types of moving average are considered they are:

- Simple Moving Average
- Exponential Moving Average.

ANALYSIS AND INTERPRETATION**TABLE 1.1: RATE OF CHANGE FOR BANK OF BARODA AND PUNJAB NATIONAL BANK**

Date	Price	ROC – I (%)	ROC –II (%)	Price	ROC – I (%)	ROC –II (%)
8-Nov-10	1031.4			1360.65		
9-Nov-10	1011.15			1385.4		
10-Nov-10	1021.25			1367.1		
11-Nov-10	1006.8			1349.4		
12-Nov-10	982.25			1324.95		
15-Nov-10	985.65			1333.45		
16-Nov-10	972.05			1319.85		
18-Nov-10	959.7	93.05	-6.95	1303.2	95.78	-4.22
19-Nov-10	936.45	92.61	-7.39	1286.05	92.83	-7.17
22-Nov-10	966.65	94.65	-5.35	1307.45	95.64	-4.36
23-Nov-10	963.8	95.73	-4.27	1305.35	96.74	-3.26
24-Nov-10	928.05	94.48	-5.52	1265.8	95.54	-4.46
25-Nov-10	896.2	90.92	-9.08	1183.6	88.76	-11.24
26-Nov-10	894.35	92.01	-7.99	1151.45	87.24	-12.76
29-Nov-10	910.8	94.90	-5.10	1176.15	90.25	-9.75
30-Nov-10	937.25	100.09	0.09	1218.6	94.76	-5.24
1-Dec-10	955.55	98.85	-1.15	1250.45	95.64	-4.36
2-Dec-10	968.35	100.47	0.47	1271	97.37	-2.63
3-Dec-10	959.2	103.36	3.36	1274.05	100.65	0.65
6-Dec-10	927.3	103.47	3.47	1227.1	103.68	3.68
7-Dec-10	902.55	100.92	0.92	1196.95	103.95	3.95
8-Dec-10	892.5	97.99	-2.01	1180.35	100.36	0.36
9-Dec-10	880.35	93.93	-6.07	1172.15	96.19	-3.81
10-Dec-10	880.05	92.10	-7.90	1199.15	95.90	-4.10
13-Dec-10	885	91.39	-8.61	1227.35	96.57	-3.43
14-Dec-10	904.3	94.28	-5.72	1235.7	96.99	-3.01
15-Dec-10	883.15	95.24	-4.76	1200.9	97.86	-2.14
16-Dec-10	893.5	99.00	-1.00	1211.55	101.22	1.22
20-Dec-10	888	99.50	-0.50	1205.45	102.13	2.13
21-Dec-10	893.3	101.47	1.47	1215.85	103.73	3.73
22-Dec-10	892.6	101.43	1.43	1200.5	100.11	0.11
23-Dec-10	889.85	100.55	0.55	1202.9	98.01	-1.99
24-Dec-10	891.7	98.61	-1.39	1215.45	98.36	-1.64
27-Dec-10	885.8	100.30	0.30	1207.7	100.57	0.57
28-Dec-10	889.45	99.55	-0.45	1216.8	100.43	0.43
29-Dec-10	891.55	100.40	0.40	1223.9	101.53	1.53
30-Dec-10	899.75	100.72	0.72	1215.95	100.01	0.01
31-Dec-10	896.7	100.46	0.46	1222	101.79	1.79
3-Jan-11	892.3	100.28	0.28	1222.75	101.65	1.65
4-Jan-11	878.05	98.47	-1.53	1220.75	100.44	0.44
5-Jan-11	875.35	98.82	-1.18	1205.5	99.82	-0.18
6-Jan-11	838.55	94.28	-5.72	1191.15	97.89	-2.11
7-Jan-11	848.9	95.22	-4.78	1168.7	95.49	-4.51
10-Jan-11	848.55	94.31	-5.69	1151.8	94.72	-5.28
11-Jan-11	859.9	95.90	-4.10	1174.2	96.09	-3.91
12-Jan-11	855.2	95.84	-4.16	1191.9	97.48	-2.52
13-Jan-11	829.8	94.50	-5.50	1133.65	92.87	-7.13
14-Jan-11	827.05	94.48	-5.52	1119.05	92.83	-7.17
17-Jan-11	829.45	98.91	-1.09	1134	95.20	-4.80
18-Jan-11	812.9	95.76	-4.24	1147	98.14	-1.86
19-Jan-11	825.85	97.32	-2.68	1141.4	99.10	-0.90
20-Jan-11	824.4	95.87	-4.13	1141.4	97.21	-2.79
21-Jan-11	836.8	97.85	-2.15	1125.35	94.42	-5.58
24-Jan-11	873.5	105.27	5.27	1150.1	101.45	1.45
25-Jan-11	868.9	105.06	5.06	1137.8	101.68	1.68
27-Jan-11	843.45	101.69	1.69	1108.65	97.76	-2.24
28-Jan-11	834.3	102.63	2.63	1093.8	95.36	-4.64
31-Jan-11	869.5	105.29	5.29	1104.45	96.76	-3.24
1-Feb-11	855.25	103.74	3.74	1101	96.46	-3.54
2-Feb-11	860.35	102.81	2.81	1079.95	95.97	-4.03
3-Feb-11	857.2	98.13	-1.87	1084.95	94.34	-5.66
4-Feb-11	832.15	95.77	-4.23	1059.25	93.10	-6.90

Source: (www.nseindia.com)

TABLE - 1.2: CALCULATION OF RATE OF CHANGE

ROC	BANK OF BARODA	PUNJAB NATIONAL BANK
ROC I	$959.7/1031.4 \times 100 = 93.05$	$1303.2/1360.65 \times 100 = 95.88$
ROC II	$959.7/1031.4 \times 100 - 100 = -6.95$	$1303.3/1360.65 \times 100 - 100 = -4.22$

FIG 1.1: RATE OF CHANGE FOR BANK OF BARODA



FIG 1.2: RATE OF CHANGE FOR PUNJAB NATIONAL BANK

**INTERPRETATION**

If the rate of change for a script reaches the historic high values, the script is in overbought region and a fall in the value can be anticipated in the near future. Likewise, if the rate of change for a script reaches the historic low value, the script is in the oversold region and a rise in the script's price can be anticipated. Technical analysis suggests that investors can sell the scrip in the overbought region and buy it in the oversold region. Hence from the analysis of data it has been observed that the share price of Bank of Baroda and Punjab National Bank fluctuate daily and it is very difficult to predict as it is not constant.

TABLE 1.3: RELATIVE STRENGTH INDEX FOR BANK OF BARODA AND PUNJAB NATIONAL BANK

Date	Price	Gain	Loss	Price	Gain	Loss
8-Nov-10	1031.4			1360.65		
9-Nov-10	1011.15		20.25	1385.4	24.75	
10-Nov-10	1021.25	10.1		1367.1		18.3
11-Nov-10	1006.8		14.45	1349.4		17.7
12-Nov-10	982.25		24.55	1324.95		24.45
15-Nov-10	985.65	3.4		1333.45	8.5	
16-Nov-10	972.05		13.6	1319.85		13.6
18-Nov-10	959.7		12.35	1303.2		16.65
19-Nov-10	936.45		23.25	1286.05		17.15
22-Nov-10	966.65	30.2		1307.45	21.4	
23-Nov-10	963.8		2.85	1305.35		2.1
24-Nov-10	928.05		35.75	1265.8		39.55
25-Nov-10	896.2		31.85	1183.6		82.2
26-Nov-10	894.35		1.85	1151.45		32.15
29-Nov-10	910.8	16.45		1176.15	24.7	
30-Nov-10	937.25	26.45		1218.6	42.45	
1-Dec-10	955.55	18.3		1250.45	31.85	
2-Dec-10	968.35	12.8		1271	20.55	
3-Dec-10	959.2		9.15	1274.05	3.05	
6-Dec-10	927.3		31.9	1227.1		46.95
7-Dec-10	902.55		24.75	1196.95		30.15
8-Dec-10	892.5		10.05	1180.35		16.6
9-Dec-10	880.35		12.15	1172.15		8.2
10-Dec-10	880.05		0.3	1199.15	27	
13-Dec-10	885	4.95		1227.35	28.2	
14-Dec-10	904.3	19.3		1235.7	8.35	
15-Dec-10	883.15		21.15	1200.9		34.8
16-Dec-10	893.5	10.35		1211.55	10.65	
20-Dec-10	888		5.5	1205.45		6.1
21-Dec-10	893.3	5.3		1215.85	10.4	
22-Dec-10	892.6		0.7	1200.5		15.35
23-Dec-10	889.85		2.75	1202.9	2.4	
24-Dec-10	891.7	1.85		1215.45	12.55	
27-Dec-10	885.8		5.9	1207.7		7.75
28-Dec-10	889.45	3.65		1216.8	9.1	
29-Dec-10	891.55	2.1		1223.9	7.1	
30-Dec-10	899.75	8.2		1215.95		7.95
31-Dec-10	896.7		3.05	1222	6.05	
3-Jan-11	892.3		4.4	1222.75	0.75	
4-Jan-11	878.05		14.25	1220.75		2
5-Jan-11	875.35		2.7	1205.5		15.25
6-Jan-11	838.55		36.8	1191.15		14.35
7-Jan-11	848.9	10.35		1168.7		22.45
10-Jan-11	848.55		0.35	1151.8		16.9
11-Jan-11	859.9	11.35		1174.2	22.4	
12-Jan-11	855.2		4.7	1191.9	17.7	
13-Jan-11	829.8		25.4	1133.65		58.25
14-Jan-11	827.05		2.75	1119.05		14.6
17-Jan-11	829.45	2.4		1134	14.95	
18-Jan-11	812.9		16.55	1147	13	
19-Jan-11	825.85	12.95		1141.4		5.6
20-Jan-11	824.4		1.45	1141.4	0	
21-Jan-11	836.8	12.4		1125.35		16.05
24-Jan-11	873.5	36.7		1150.1	24.75	
25-Jan-11	868.9		4.6	1137.8		12.3
27-Jan-11	843.45		25.4	1108.65		29.15
28-Jan-11	834.3		9.15	1093.8		14.85
31-Jan-11	869.5	35.2		1104.45	10.65	
1-Feb-11	855.25		14.25	1101		3.45
2-Feb-11	860.35	5.1		1079.95		21.05
3-Feb-11	857.2		3.15	1084.95	5	
4-Feb-11	832.15		25.05	1059.25		25.7
TOTAL		299.85	499.05		408.25	709.65

Source: (www.nseindia.com)

BANK OF BARODA

Gain = $299.85/22 = 13.63$ Loss = $499.05/39 = 12.80$ RS = $13.63/12.80 = 1.06$

PUNJAB NATIONAL BANK

Gain = $408.25/27 = 15.12$ Loss = $709.65/34 = 20.88$ Rs = $15.12/20.88 = 0.73$

$$RSI = 100 - \left[\frac{100}{1+Rs} \right]$$

$$= 100 - 48.54$$

$$= 51.46$$

$$RSI = 100 - \left[\frac{100}{1+Rs} \right]$$

$$= 100 - 57.80$$

$$= 42.2$$

TABLE 1.4: RELATIVE STRENGTH INDEX FOR BANKS

Bank	Common Value	*Calculated Value	RSI
Bank of Baroda	100	48.54	51.46
Punjab National Bank	100	57.80	42.2

*Calculated value = $(100/1+RS)$

In general RSI ranges between 30 and 70. Below 30 classifies oversold and above 70 distinguishes overbought. Many traders look at RSI falling below 70 as a bearish signal and breaking above 30 as a bullish indicator; however, many also look at the 50 mark as a transition of ultimate trend reversal.

The broad rule is, if the RSI is below "seventy" it indicates the bearish signal & if the RSI is above "thirty" it indicates the bullish signal. From the above analysis it can be observed that stocks of the banks are in support zone defined as a lower range for bull market.

TABLE 1.5: CALCULATION OF BETA BETWEEN INDEX RETURN AND MARKET RETURN

Bank	*Calculated Value 1	*Calculated Value 2	Beta
Bank of Baroda	3872.26	5139.32	0.75
Punjab National Bank	5479.36	5139.32	1.07

FIG 1.3: CALCULATION OF BETA BETWEEN INDEX RETURN AND MARKET RETURN



*Calculated Value 1 = $n\sum xy - (\sum x)(\sum y)$

*Calculated Value 2 = $n\sum x^2 - (\sum x)^2$

INTERPRETATION

One per cent changes in market index return causes 0.5 per cent change in stock return. The stock is less volatile compared to the market. When stocks with more than 1 beta value is considered to be risky. From the above analysis it has been observed that the scrip's of the bank like Axis Bank, Punjab National Bank and ICICI Bank is considered to be risky and the share price of Bank of Baroda is less volatile compared to market.

TABLE 1.6: ANALYSIS OF ALPHA BETWEEN INDEX AND MARKET RETURN

Bank	* \bar{Y}	* $\bar{\beta X}$	α
Bank of Baroda	-0.33	0.18	-0.15
Punjab National Bank	-0.39	0.26	-0.13

FIG 1.4: ANALYSIS OF ALPHA BETWEEN INDEX AND MARKET RETURN



$$* Y = \frac{Y}{n}$$

$$* \beta X = \text{Beta value} * X/n$$
INTERPRETATION

It indicates that the stock return is independent of the market return. Positive alpha indicates the manager produced a return greater than expected for the risk taken and negative alpha indicates the investor has not adequately rewarded investors for the risk taken. From the above analysis, it has been observed that all the banks are not adequately rewarded investors for the risk taken and it indicates that stock return is independent of the market return for all banks.

TABLE 1.7: CORRELATION BETWEEN INDEX RETURN AND MARKET RETURN

Bank	Calculated Value 1	Calculated Value 2	Correlation
Bank of Baroda	3872.26	8042.90	0.48
Punjab National Bank	5479.36	8159.64	0.67

FIG 1.5: CORRELATION BETWEEN INDEX RETURN AND MARKET RETURN



$$\text{*Calculated Value 1} = \frac{n\sum xy - (\sum x)(\sum y)}{n}$$

$$\text{*Calculated Value 2} = \frac{\sqrt{n\sum x^2 - (\sum x)^2} \sqrt{n\sum y^2 - (\sum y)^2}}{n}$$

INTERPRETATION

From the analysis of data, it has been observed that in case of Bank of Baroda there is a "Lower level" of positive correlation exists between stock return and NSE index return however Punjab National Bank indicates "Higher degree" of positive correlation

TABLE 1.8: BREADTH OF THE MARKET

Day	Advances	Declines	Net	Breadth	NSE
8-Nov-10	638	799	-161	-161	6273.2
9-Nov-10	835	583	252	91	6301.55
10-Nov-10	826	595	231	322	6275.7
11-Nov-10	463	964	-501	-179	6194.25
12-Nov-10	211	1232	-1021	-1200	6071.65
15-Nov-10	528	902	-374	-1574	6121.6
16-Nov-10	150	1289	-1139	-2713	5988.7
18-Nov-10	426	1011	-585	-3298	5998.8
19-Nov-10	215	1225	-1010	-4308	5890.3
22-Nov-10	983	447	536	-3772	6010
23-Nov-10	274	1163	-889	-4661	5934.75
24-Nov-10	513	905	-392	-5053	5865.75
25-Nov-10	246	1193	-947	-6000	5799.75
26-Nov-10	162	1290	-1128	-7128	5751.95
29-Nov-10	735	693	42	-7086	5830
30-Nov-10	1076	358	718	-6368	5862.7
1-Dec-10	1271	169	1102	-5266	5960.9
2-Dec-10	952	466	486	-4780	6011.7
3-Dec-10	229	1212	-983	-5763	5992.8
6-Dec-10	571	856	-285	-6048	5992.25
7-Dec-10	336	1090	-754	-6802	5976.55
8-Dec-10	158	1270	-1112	-7914	5903.7
9-Dec-10	71	1373	-1302	-9216	5766.5
10-Dec-10	1103	329	774	-8442	5857.35
13-Dec-10	1103	326	777	-7665	5907.65
14-Dec-10	1071	350	721	-6944	5944.1
15-Dec-10	340	1075	-735	-7679	5892.3
16-Dec-10	780	625	155	-7524	5948.75
20-Dec-10	734	688	46	-7478	5947.05
21-Dec-10	939	485	454	-7024	6000.65
22-Dec-10	761	655	106	-6918	5984.4
23-Dec-10	596	811	-215	-7133	5980
24-Dec-10	804	602	202	-6931	6011.6
27-Dec-10	688	730	-42	-6973	5998.1
28-Dec-10	686	718	-32	-7005	5996
29-Dec-10	938	467	471	-6534	6060.35
30-Dec-10	811	608	203	-6331	6101.85
31-Dec-10	1041	379	662	-5669	6134.5
3-Jan-11	1087	347	740	-4929	6157.6
4-Jan-11	650	790	-140	-5069	6146.35
5-Jan-11	319	1113	-794	-5863	6079.8
6-Jan-11	355	1069	-714	-6577	6048.25
7-Jan-11	128	1317	-1189	-7766	5904.6
10-Jan-11	173	1273	-1100	-8866	5762.85
11-Jan-11	458	964	-506	-9372	5754.1
12-Jan-11	1032	395	637	-8735	5863.25
13-Jan-11	459	981	-522	-9257	5751.9
14-Jan-11	314	1121	-807	-10064	5654.55
17-Jan-11	322	1117	-795	-10859	5654.75
18-Jan-11	771	647	124	-10735	5724.05
19-Jan-11	679	722	-43	-10778	5691.05
20-Jan-11	751	671	80	-10698	5711.6
21-Jan-11	721	671	50	-10648	5696.5
24-Jan-11	826	570	256	-10392	5743.25
25-Jan-11	495	928	-433	-10825	5687.4
27-Jan-11	359	1062	-703	-11528	5604.3
28-Jan-11	147	1311	-1164	-12692	5512.15
31-Jan-11	477	948	-471	-13163	5505.9
1-Feb-11	376	1050	-674	-13837	5417.2
2-Feb-11	730	685	45	-13792	5432
3-Feb-11	985	443	542	-13250	5526.75
4-Feb-11	327	1098	-771	-14021	5395.75

Source: (www.nseindia.com)

FIG 1.6: BREADTH OF THE MARKET

**CALCULATION FOR BREADTH OF THE MARKET**

Net = 638 – 799 = -161	Breadth = -161
Net = 835 – 583 = 252	Breadth = -161+252 = 91
Net = 826 – 595 = 231	Breadth = 91+231 = 322
Net = 463 – 964 = -501	Breadth = 322+(-501) = -179

INTERPRETATION

Advance and decline line is compared with the market index. Generally in a bull market, a bearish signal is given when the A/D line slopes down while the NSE index is rising. In a bear market, a bullish signal is given when the A/D line begins rising as the Nifty is declining. From the above analysis it has been observed that it is a bear market where a bullish signal is given because the A/D line begins rising as the Nifty is declining to new low. When the A/D spread crosses above its zero line, this means more stocks are advancing than declining, and vice versa.

TABLE 1.9: SIMPLE AND EXPONENTIAL MOVING AVERAGE FOR BANK OF BARODA AND PUNJAB NATIONAL BANK

Date	Price	10days SMA	Smoothing constant 2/(N+1)	10days EMA	Price	10days SMA	Smoothing Constant 2/(N+1)	10days EMA
8-Nov-10	1031.4				1360.65			
9-Nov-10	1011.15				1385.4			
10-Nov-10	1021.25				1367.1			
11-Nov-10	1006.8				1349.4			
12-Nov-10	982.25				1324.95			
15-Nov-10	985.65				1333.45			
16-Nov-10	972.05				1319.85			
18-Nov-10	959.7				1303.2			
19-Nov-10	936.45				1286.05			
22-Nov-10	966.65	987.34	0.1818	987.34	1307.45	1333.75		1333.75
23-Nov-10	963.8	980.58	0.1818	986.11	1305.35	1328.22	0.1818	1332.74
24-Nov-10	928.05	972.27	0.1818	983.59	1265.8	1316.26	0.1818	1329.75
25-Nov-10	896.2	959.76	0.1818	979.26	1183.6	1297.91	0.1818	1323.96
26-Nov-10	894.35	948.52	0.1818	973.67	1151.45	1278.11	0.1818	1315.63
29-Nov-10	910.8	941.37	0.1818	967.80	1176.15	1263.23	0.1818	1306.10
30-Nov-10	937.25	936.53	0.1818	962.11	1218.6	1251.75	0.1818	1296.22
1-Dec-10	955.55	934.88	0.1818	957.16	1250.45	1244.81	0.1818	1286.87
2-Dec-10	968.35	935.75	0.1818	953.27	1271	1241.59	0.1818	1278.64
3-Dec-10	959.2	938.02	0.1818	950.50	1274.05	1240.39	0.1818	1271.69
6-Dec-10	927.3	934.09	0.1818	947.51	1227.1	1232.35	0.1818	1264.54
7-Dec-10	902.55	927.96	0.1818	943.96	1196.95	1221.51	0.1818	1256.72
8-Dec-10	892.5	924.41	0.1818	940.40	1180.35	1212.97	0.1818	1248.76
9-Dec-10	880.35	922.82	0.1818	937.21	1172.15	1211.82	0.1818	1242.05
10-Dec-10	880.05	921.39	0.1818	934.33	1199.15	1216.59	0.1818	1237.42
13-Dec-10	885	918.81	0.1818	931.51	1227.35	1221.71	0.1818	1234.56
14-Dec-10	904.3	915.52	0.1818	928.60	1235.7	1223.42	0.1818	1232.54
15-Dec-10	883.15	908.28	0.1818	924.91	1200.9	1218.47	0.1818	1229.98
16-Dec-10	893.5	900.79	0.1818	920.52	1211.55	1212.52	0.1818	1226.81
20-Dec-10	888	893.67	0.1818	915.64	1205.45	1205.66	0.1818	1222.96
21-Dec-10	893.3	890.27	0.1818	911.03	1215.85	1204.54	0.1818	1219.61
22-Dec-10	892.6	889.28	0.1818	907.07	1200.5	1204.89	0.1818	1216.94
23-Dec-10	889.85	889.01	0.1818	903.79	1202.9	1207.15	0.1818	1215.16
24-Dec-10	891.7	890.15	0.1818	901.31	1215.45	1211.48	0.1818	1214.49
27-Dec-10	885.8	890.72	0.1818	899.38	1207.7	1212.33	0.1818	1214.10
28-Dec-10	889.45	891.17	0.1818	897.89	1216.8	1211.28	0.1818	1213.59
29-Dec-10	891.55	889.89	0.1818	896.44	1223.9	1210.1	0.1818	1212.95
30-Dec-10	899.75	891.55	0.1818	895.55	1215.95	1211.60	0.1818	1212.71
31-Dec-10	896.7	891.87	0.1818	894.88	1222	1212.65	0.1818	1212.70
3-Jan-11	892.3	892.30	0.1818	894.41	1222.75	1214.38	0.1818	1213.00
4-Jan-11	878.05	890.78	0.1818	893.75	1220.75	1214.87	0.1818	1213.34
5-Jan-11	875.35	889.05	0.1818	892.89	1205.5	1215.37	0.1818	1213.71
6-Jan-11	838.55	883.92	0.1818	891.26	1191.15	1214.19	0.1818	1213.80
7-Jan-11	848.9	879.64	0.1818	889.15	1168.7	1209.52	0.1818	1213.02
10-Jan-11	848.55	875.92	0.1818	886.74	1151.8	1203.93	0.1818	1211.37
11-Jan-11	859.9	872.96	0.1818	884.24	1174.2	1199.67	0.1818	1209.24
12-Jan-11	855.2	869.33	0.1818	881.53	1191.9	1196.47	0.1818	1206.92
13-Jan-11	829.8	862.33	0.1818	878.04	1133.65	1188.24	0.1818	1203.52
14-Jan-11	827.05	855.37	0.1818	873.92	1119.05	1177.94	0.1818	1198.87
17-Jan-11	829.45	849.08	0.1818	869.40	1134	1169.07	0.1818	1193.46
18-Jan-11	812.9	842.57	0.1818	864.52	1147	1161.69	0.1818	1187.68
19-Jan-11	825.85	837.62	0.1818	859.63	1141.4	1155.28	0.1818	1181.79
20-Jan-11	824.4	836.20	0.1818	855.37	1141.4	1150.31	0.1818	1176.07
21-Jan-11	836.8	834.99	0.1818	851.67	1125.35	1145.97	0.1818	1170.60
24-Jan-11	873.5	837.49	0.1818	849.09	1150.1	1145.80	0.1818	1166.09
25-Jan-11	868.9	838.39	0.1818	847.14	1137.8	1142.16	0.1818	1161.74
27-Jan-11	843.45	837.21	0.1818	845.34	1108.65	1133.84	0.1818	1156.67
28-Jan-11	834.3	837.66	0.1818	843.94	1093.8	1129.85	0.1818	1151.79
31-Jan-11	869.5	841.91	0.1818	843.57	1104.45	1128.39	0.1818	1147.54
1-Feb-11	855.25	844.49	0.1818	843.74	1101	1125.09	0.1818	1143.46
2-Feb-11	860.35	849.23	0.1818	844.74	1079.95	1118.39	0.1818	1138.90
3-Feb-11	857.2	852.37	0.1818	846.12	1084.95	1112.74	0.1818	1134.15
4-Feb-11	832.15	853.14	0.1818	847.40	1059.25	1104.53	0.1818	1128.76

Source: (www.nseindia.com)

TABLE - 1.10: CALCULATION OF SIMPLE AND EXPONENTIAL MOVING AVERAGE

BANK	10days SMA	Smoothing Constant	10days EMA
BANK OF BARODA	$1031.4+1011.15+1021.25+1006.8+982.25+985.65+972.05+959.7+93.645+966.65 = 9873.35/10 = 987.34$	$2/(10+1) = 0.1818$	$0.1818(980.58-987.34)+987.34 = 986.11$
PUNJAB NATIONAL BANK	$1360.65+1385.4+1367.1+1349.4+1324.95+1333.45+1319.85+1303.2+1286.05+1307.45 = 13337.5/10 = 1333.75$	$2/(10+1) = 0.1818$	$0.1818(1328.22-1333.75)+1333.75 = 1332.74$

FIG 1.7: SIMPLE AND EXPONENTIAL MOVING AVERAGE FOR BANK OF BARODA



FIG 1.8: SIMPLE AND EXPONENTIAL MOVING AVERAGE FOR PUNJAB NATIONAL BANK



INTERPRETAION

It smoothen out the short-term fluctuation, which helps in comparing the relationship between a moving average of the security price with security price itself. A buy signal is generated when the simple moving average rises above its exponential moving average and a sell signal is generated when the simple moving average falls below its exponential moving average. From the above analysis it has been observed that a buy signal is generated for Bank of Baroda because the simple moving average rises above its exponential moving average. From the above analysis it has been observed that lower degree of sell signal is generated for Punjab National Bank because the simple moving average falls below its exponential moving average.

FINDINGS

- The Rate of Change for Bank of Baroda and Punjab national bank stock reveals that the share price movement of the stock is not constant they are volatile because it reaches both the overbought and oversold region.
- The Relative Strength Index indicates that the share price of both the bank is in support zone, which is a sign for bull market.
- The stock price of Bank of Baroda is less volatile when compared to the market index. As the beta value is more than 1 for Punjab national bank share, it is considered to be more volatile and risky
- The negative alpha indicates that the investors are not adequately rewarded for the risk taken by them.
- The correlation analysis shows that there is a less degree of positive correlation exists between stock return of Bank of Baroda and NSE return and there is a "Higher degree" of positive correlation exists between stock return of Punjab National Bank and NSE index return.
- From the analysis of breadth of the market, it has been observed that in a bear market, bullish signal is given because the Advance/Decline line begins rising as nifty is declining to a new low.
- As the simple moving average falls below exponential moving average a sell signal is generated for the share price of banks.
- Investors are usually not as rational as they think, and the basis for buying and selling are generally difficult to understand. Generally investors are quickly rally to take advantage of even the slightest, momentary panic

SUGGESTIONS AND RECOMMENDATIONS

- It can be suggestive that the investors can invest in Bank of Baroda and Punjab national bank stock but the rate of Change for bank stock indicates that prices are volatile.
- Since relative Strength Index is in the lower range of bull market, the investors can invest in banks stocks and make moderate earnings.
- The Bank of Baroda stock is most suitable for investors who want to take less risk because it is less volatile when compared to stock of Punjab National Bank.

CONCLUSION

The Rate of change for bank stock is not constant. Hence the investors can buy the script when it reaches historic high value and sell the script when it reaches historic low value. The research reveals that the banks stocks are in the support zone, thus the investors can invest in Bank of Baroda and Punjab National Bank. whereas The Bank of Baroda stock is most suitable for investors who want to take less risk because it is less volatile when compared to stock of Punjab National Bank. Simple moving average and Exponential moving average smoothen the short-term price movement for finding the buying and selling signal and also predict the market. The charts do not lie but the interpretation differs from analyst to analyst based on their approach and their skill.

REFERENCES

1. Dr. Arora. P.N and Mrs. Arora. S (2003) *Statistics for Management 1st edition*, S. Chand & Company Ltd.
2. Fusaro, Peter. C (2000), *The Handbook of Fixed Income Securities 6th edition.*, New York:, McGraw-Hill.
3. Frankel. J.A, K.A. Froot and M.P. page (1990) Chartists, Fundamentalists, and Trading in the Foreign Exchange Market. *The American Economic Review* 7.93 said, "The rising importance of chartists".
4. Grinold, Richard. C, and Ronald. N (2000) *Kahn.Active Portfolio Management 2nd edition*, New York:, McGraw-Hill.
5. Pring, Martin. J (2002) *Technical Analysis Explained: The Successful Investor's Guide to Spotting Investment Trends and Turning Points*, McGraw Hill.
6. Punithavathy Pandian (2003) *Security Analysis and Portfolio Management*, 3rd edition, Vikas Publishing House Pvt. Ltd.
7. Raschke, Linda Bradford, Connors, Lawrence. A (1995) *Street Smarts: High Probability Short-Term Trading Strategies*. M. Gordon Publishing Group.
8. Robert D. Edwards, John Magee, W.H.C. (2007) *Technical Analysis of Stock Trends 9th Edition (Hardcover)*, American Management Association.
9. Bessembinder, H., & Chan, K. (1998). Market efficiency and the returns to technical analysis. *Financial Management*, 27, 5-17.
10. Edwards, R. D., Magee, J. (2001), *Technical Atulysis of Stock Trends*. (8th ed.). AMACOM Thomsett, M, C, (1998), *Mastering Fundamental Analysis*. Kaplan Publishing,
11. Mitra, S. K. (2010). How rewarding is technical analysis in the Indian stock market? *Quantitative Finance* First published on: 11 May 2010.
12. Nath, G. C. (2001). Long Memory and Indian Stock Market – An Empirical Evidence, UTIICM Conference Paper, 2001.
13. Peters, E. E. (1994). *Fractal Market Analysis: Applying Chaos Theory to Investment and Economics*. John Wiley & Sons: New York.
14. Pinches, G. E. (1970). The Random Walk Hypothesis and Technical Analysis. *Financial Analysts Journal* 26104-110.
15. Singh, J. P., & Prabakaran. S. (2008). On the Distribution of Returns & Memory Effects in Indian Capital Markets. *International Research Journal of Finance and Economics*, 14, 165-176.

WEBSITES

1. www.lchart.com as on 09.02.2011
2. www.investorwords.com as on 28.01.2011
3. www.moneycontrol.com as on 08.02.2011
4. www.nseindia.com as on 07.02.2011

REQUEST FOR FEEDBACK

Dear Readers

At the very outset, International Journal of Research in Computer Application 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-mails i.e. **infoijrcm@gmail.com** or **info@ijrcm.org.in** 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 an appropriate consideration.

With sincere regards

Thanking you profoundly

Academically yours

Sd/-

Co-ordinator