Course Docket

3.2.1: INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

Term – III Semester

Batch - 2020-22

November 2021 – February 2022

Course Facilitator

Dr. Jahnavi M

Prof. Pooja Takalkar

R V INSTITUTE OF MANAGEMENT BANGALORE

COURSE OUTLINE

Programme	Master of Business Administration
Batch	2020-2022
Semester	III
Course Title	Investment Analysis and Portfolio Management
Course Code	3.2.1
Credits	4
Sessions	1 Hour per session (56 Sessions - 56 Hours)
Course facilitator	Dr. Jahnavi M Prof. Pooja Takalkar

PART A

INTRODUCTION

Investing surplus funds for generating some returns is common among individuals and organizations. When a business enterprise has idle funds for a certain period of time, it is prudent on the part of the enterprise to invest it wisely and generate decent returns, the onus of which lies on finance manager. Hence, it is essential for finance professional to have knowledge on the process of making and managing investments. This course entitled "Investment Analysis and Management" is introduced to orient a finance professional regarding the process of making and managing investments.

COURSE OUTCOMES

Post completion of the course student should be able to:-

CO1. Understand the various concepts of investment and important factors to be consider before investing money in any of the investment avenue.

CO2. Measure the risk and return of individual security and portfolio

CO3. Able to acquire portfolio management knowledge and skill sets to apply in real world.

CO4. Evaluate different portfolios using CAPM and APT Models

CO5. Apply different theories, tools and techniques of portfolio construction, evaluation and revision

CO6. Understand market dynamics, stock trading and application of security analysis tools and techniques

PROGRAM OUTCOMES

PO1: Apply knowledge of management theories and practices to solve business problems.

PO2: Foster Analytical and critical thinking abilities for data-based decision making

PO3: Ability to develop Value based Leadership

PO4: Ability to understand, analyze and communicate global, economic, societal, cultural, legal and ethical aspects of business

PO5: Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment

PO6: Ability to identify business opportunities, frame innovative solutions and launch new business ventures or be an entrepreneur

PO7: Ability to deal with contemporary issues using multi-disciplinary approach with the help of advanced Management and IT tools and techniques

PO8: Ability to apply domain specific knowledge and skills to build competencies in their respective functional area

PO9: Ability to engage in research and development work with cognitive flexibility to create new knowledge and be a lifelong learner

PO10: Ability to understand social responsibility and contribute to the community for inclusive growth and sustainable development of society through ethical behavior

PO11: Ability to function effectively as individuals and in teams through effective communication and Negotiation skills.

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11
CO1	2	1	-	-	1	1	1	2	1	1	-
CO2	2	2	1	-	1	2	1	2	2	-	-
CO3	1	3	1	1		1	1	2	1	-	1
CO4	2	3	1	1	1	2	2	2	2	1	2
CO5	2	1	-	1	1	1		1	2	1	1
CO6	1	2	-	1	1	1	1	2	1	1	1

LEVEL 3-Substantial 2-Moderate 1-Slight - No Co-relation

MODULE WISE OUTCOMES

Post completion of the module student should be able to:

Module 1:

MO1: Understand the concept and process of investment

MO2: Identify and asses various Investment Alternatives

MO3: briefly evaluate the financial markets and Investment environment in India

Module 2:

MO4: Understand the concept of Risk, Types of Risk and Return

MO5: Measuring the risk and return of stocks

MO6: Understand the stock market operations, listing, issue of shares and trading

Module 3:

MO7: Understand the concept of risk diversification and measuring portfolio risk and return

MO8: Application of Markowitz Model for construction of efficient portfolio

MO9: Application of Sharpe's Single Index Model for construction of optimum portfolio

Module 4:

MO10: Understand the concept of asset pricing and Application of CAPM in real world

MO11: Understand and Application of Arbitrage Pricing Theory

Module 5:

MO12: Calculation and application of Portfolio Evaluation techniques which includes Sharpe's Performance Index, Treynor's Performance Index and Jensen's Measure

MO13: Understand the portfolio revision methods

Module 6:

MO14: Identify sources of information and application of fundamental analysis in stock selection.

MO15: Understand the trends, patterns and application of technical analysis with technical indicators and charts.

MO16: Application and implications of Efficient Market Hypothesis in real world.

MO17: Understand the concept of Behavioral Finance.

TEACHING PEDAGOGY

- Power point presentations
- Numerical through board
- Projects and assignments on various topics
- Discussion on real time cases and articles.
- Multimedia cases
- Group discussions and debate on Investment environment in India.

TEXT BOOKS AND REFERENCE MATERIALS

ESSENTIAL READINGS

1. M.R Agrawal, "Security Analysis and Portfolio Management", Garima Publications.
2. Punithavathy Pandian, "Security Analysis and Portfolio Management", Vikas Publishing House Private Limited.
3. Chandra, Prasanna, "Investment Analysis and Portfolio Management", Tata McGraw Hill Publishing Limited.
4. Reily and Brown, "Investment Analysis and Portfolio Management", Thomson South Western.

REFERENCES

- Fischer, E Donald & Jordan, J Ronald, "Security Analysis and Portfolio Management", Prentice Hall of India Pvt. Ltd.
- Haugen Robert (2003); "Modern Investment Theory", Pearson Education, 5th Edition.
- Bhalla, V.K. (2006); "Investment Management", S. Chand; 12th Edition.
- Hirschey and Nofsinger (2008); "Investments – Analysis and Behaviour", Tata McGraw Hill Publishing Company Limited, Special Indian Edition.
- Avadhani V.A (2006), "Securities Analysis and Portfolio Management", Himalaya Publishing House, Eighth Revised Edition.

- Sharpe, Alexander and Bailey (1996); “Investments”, Prentice Hall of India Private Limited, 5th Edition.
- Kevin (2008); “Security Analysis and Portfolio Management”, Prentice Hall of India Private Limited, First Reprint Edition.
- Maheshwari, Yogesh (2008); “Investment Management”, PHI Learning Private Limited, First Edition.
- Indian Institute of Banking and Finance (2004); “Technical and Fundamental Analysis of Companies”, Taxmann Publications, First Edition.
- “Stock Market Book” (2005); Dalal Street Journal.

CASES AND ARTICELS

- Article on “Investment environment best in India, says Modi”, By The Hindu, 7 October 2018. (https://www.thehindubusinessline.com/economy/investment-environment-best-in-india-says-modi/article25150179.ece)
- Investment Climate 2018: An Article by Mr Mradul Mishra.
- World Investment Report 2018 by UNCTAD (United Nations Conference on Trade and Development)
- Case Study: When risk isn't bad?
- Portfolio Construction: A Case Study on High Market Capitalization Stocks in Bangladesh
- Performance Evaluation of Mutual Fund in India (A Case Study on SBI Mutual Fund)
- Application of Markowitz Model in analyzing risk and return : A Case Study on BSE Stock
- A Critical Analysis of Indian Mutual Funds Sector: A Case Study of Unit Trust of India (UTI) Mutual Fund, Bank of India (BOI) Mutual Fund and Tata Mutual Fund) "
- Fundamental versus technical analysis of investment: case study of investors decision in Indonesia stock exchange

SUPPORTING READINGS

- Economic Times
- Business Line
- Business Standard
- Capital Line
- Dalal Street

MUST VISIT WEBSITES:

- www.bseindia.com
- www.investopedia.com
- www.nseindia.com
- www.capitalmarket.com
- www.amfiindia.com
- www.morningstar.in
- www.equitymaster.com
- www.tradingeconomy.com
- www.ibef.org
- www.financeprofessor.com
- www.moneycontrol.com
- www.rbi.gov.in
- www.sebi.gov.in
- finance.yahoo.com
- www.capitaline.com

COURSE FACILITATOR

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PART- B

SESSION PLAN

SESSION NO.	COVERAGE OF THE KEY CONCEPTS		TEACHING PEDAGOGY	READING MATERIAL TO BE REFERRED
1.	Introduction to the subject and detailed briefing of the syllabus.		Lecture Class Room Discussion Understanding the concept with real time data	Chapter 1 of Book 1 Chapter 1 of Book 2
2.	**Module – 1 Investment Background and Financial Markets**	• Introduction & Definition of Investment • Financial and economic meaning • Investment Objectives: • Investment constraints: • Difference between investment, speculation and gambling • Difference between gambling, arbitrage and hedging.	Lecture Class Room Discussion Understanding the concept with real time data	Chapter 1 of Book 1 Chapter 1 of Book 2
3	• Process of investment • Investment Attributes • Forms of Investment-investment in physical and financial assets; • Direct and indirect form of investment.		Lecture Class Room Discussion Understanding the concept with real time data	Chapter 1 of Book 1 Chapter 1 of Book 2
4	Non-Marketable Financial Assets • Bank Deposit • POTDs		Lecture Class Room	Chapter 2 of Book 1

	• MIS • NSE • Company Deposits • PPF, EPF Money Market Instruments • T-bills • Certificate of deposit • Commercial papers • Repos		Discussion Understanding the concept with real time data	Chapter 1 of Book 2
5	Fixed Income bearing Securities • Government Securities • RBI Savings Bonds • Debentures • PSU Bonds • Preference shares Equity – Types and suitability Mutual Funds – Types and benefits		Lecture Class Room Discussion Understanding the concept with real time data	Chapter 2 of Book 1 Chapter 1 and 2 of Book 2
6	• Life Insurance – Types and merits • Real estate, gold, silver – Market operation and Current Market scenario • Meaning, types of financial derivatives, benefits and suitability: • Micro & Macro factors relating to investment		Lecture Class Room Discussion Understanding the concept with real time data	Chapter 2 of Book 1 Chapter 1 and 2 of Book 2
7	• Discussion on Investment environment in India. • Code of Ethics and Standards for investment professionals.		• Article on Investment Climate on Feb 2018	Internet; Economic Times
8	• Introduction to Financial markets		Lecture Class Room Discussion Understanding the concept with real time data	Video from you tube and study material
9	**Module – 2 Risk and Return Analysis**	Introduction, Meaning and Classification of Risk • Systematic &	• Lecture • Class Room Discussion	Chapter 9 of Book 1

		Unsystematic risk Statistical Tools used in risk measurement • Standard deviation • Variance • Coefficient of variation • Beta	• Practical exercises using real time data • Case Study: When risk isn't bad?	Chapter 5 of Book 2 Chapter 1 of Book 3
10	• Concept of Return. Measurement of Return; Relative Return, • Expected value and measuring Return over multiple periods		• Lecture • Class Room Discussion • Practical exercises using real time data	Chapter 9 of Book 1 Chapter 5 of Book 2 Chapter 1 of Book 3
11	• Continuous probability Distribution		• Practical exercises using real time data	Chapter 9 of Book 1 Chapter 5 of Book 2 Chapter 1 of Book 3
12	• Practical problems on risk and return and preparation for case study numerical		• Practical exercises using real time data	Chapter 9 of Book 1 Chapter 5 of Book 2 Chapter 1 of Book 3
13	• Calculation of Coefficient of variation and Beta		• Lecture • Class Room Discussion • Understanding the concept with real time data	Presentation Material www.bseindia.com www.nseindia.com
14	• Numerical problems related to risk and return		• Lecture • Class Room Discussion	Presentation Material www.bseindia.c

			• Understanding the concept with real time data	om www.nseindia.com
15	**Module- 3** **PORTFOLIO ANALYSIS: THE MECHANICS OF INVESTMENT**	• Meaning, process of portfolio management • Concept of Diversification • Naïve and Markowitz diversification	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 12 of Book 1 Chapter 15 & 16 of Book 2 Chapter 14 of Book 3
16	• Correlation between securities • Quantification of portfolio risk and return • Return of portfolio (2 assets) Risk of portfolio		• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 12 of Book 1 Chapter 15 & 16 of Book 2 Chapter 14 of Book 3
17	• Numerical relates to portfolio risk and return		• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 12 of Book 1 Chapter 15 & 16 of Book 2 Chapter 14 of Book 3
18	Markowitz model • Assumptions & concept • Efficient frontier		• Lecture • Class Room Discussion • Understanding the concept with real time data • Construction of Optimal Portfolio of Equity, Using Sharpe's Single Index Model: A Case Study	Chapter 12 of Book 1 Chapter 15 & 16 of Book 2 Chapter 14 of Book 3

		of IT Sector • Problems	
19	• Sharpe Single Index Model- Concept of alpha and Beta	• Lecture • Understanding the concept with real time data • Workshop: hands on experience	Chapter 13 of Book 1 Chapter 17 of Book 2
20	• Numerical problems related alpha and beta	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 13 of Book 1 Chapter 17 of Book 2
21	Corner Portfolio, Portfolio Risk-Return, Portfolio optimization & selection	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 13 of Book 1 Chapter 17 of Book 2
22	• Miscellaneous problems related to portfolio risk and return	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3
23	• Discussion on case study of portfolio Construction	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 17 of Book 2
24	• 2 questions related to creation of optimum portfolio	• Lecture • Class Room Discussion • Understanding the concept with real	Chapter 10 of Book 2 Chapter 6 of Book 3

			time data	
25	• Numerical problems related to Short sales concepts		• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 10 of Book 2 Chapter 6 of Book 3
26	• Practice questions		• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3
27	**Module 4- CAPM and Arbitrage Pricing Theory**	CAPM: Meaning, assumptions, CML- graphical representation SML- Graphical representation	• Lecture • Class Room Discussion • An Empirical Testing of Capital Asset Pricing Model in India • Understanding the concept with real time data • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
28	Numerical problems related to CAPM		• Lecture • Class Room Discussion • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
29	Numerical problems related to CAPM		• Lecture • Class Room Discussion • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of

			Book 3
30	Numerical problems related to CML	• Lecture • Class Room Discussion • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
31	• Difference between CML and SML; Application of SML; • Overvaluation and undervaluation of securities. • Limitations of CML and SML.	• Lecture • Class Room Discussion • Understanding the concept with real time data • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
32	• Numerical problems related to valuation of portfolios and evaluating different portfolios	• Lecture • Class Room Discussion • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
33	• Arbitrage Pricing Theory, Building of Arbitrage Portfolio, Return Generating process, Factor Model. •	• Lecture • Class Room Discussion • Understanding the concept with real time data • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
34	• Numerical problems related to APT Model.	• Lecture • Class Room Discussion • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
35	• Mixed problems related to CAPM , CML and PT	• Lecture • Class Room Discussion	Chapter 19 of Book 1

			• Problems	Chapter 9 of Book 2 Chapter 8 of Book 3
36	• Practice questions related to Capital Market theory		• Lecture • Class Room Discussion • Problems	Chapter 19 of Book 1 Chapter 9 of Book 2 Chapter 8 of Book 3
37	**MODULE 5: Performance Evaluation and Revision of Portfolios**	Portfolio Evaluation • Sharpe's Performance Index • Treynor's Performance Index • Jensen's Performance Index	• Lecture • Class Room Discussion • Problems	Chapter 20 of Book 1 Chapter 20 of Book 2 Chapter 26 of Book 3
38	• Numerical problems related to all the performance Indexes		• Lecture • Class Room Discussion • Problems	Chapter 20 of Book 1 Chapter 20 of Book 2 Chapter 26 of Book 3
39	• Numerical problems related to all the performance Indexes		• Lecture • Class Room Discussion • Problems	Chapter 20 of Book 1 Chapter 20 of Book 2 Chapter 26 of Book 3
40	• Numerical related to all the performance indexes		• Lecture • Class Room Discussion • Problems	Chapter 20 of Book 1 Chapter 20 of Book 2 Chapter 26 of Book 3

41	• Information Ratio, Sortino's Ratio, Challenges in Performance management		• Lecture • Class Room Discussion • Problems	Chapter 20 of Book 1 Chapter 20 of Book 2 Chapter 26 of Book 3
42	• Evaluation of Mutual Fund - NAV method		• Lecture • Performance Evaluation of Mutual Fund in India (A Case Study on SBI Mutual Fund) • Problems	Case study material Internet
43	Portfolio Revision • Investment Timing, • Formula Plans • Constant Dollar Value Plan		• Lecture and class room discussion	Study material
44	• Constant Ratio Plan, • Variable Ratio Plan		• Lecture and classroom discussion	Study material
45	Revision of numerical problems		• Chalk and talk	Study material
46	**Module -6 Security Analysis and Behavioral Finance**	**Fundamental analysis** • Meaning • Objectives Approaches to fundamental analysis • Economic analysis	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 13 of Book 1 Chapter 17 of Book 2
47	• Industry analysis • Approaches to Industry analysis • Company analysis • Labour management relation and location		• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 13 of Book 1 Chapter 17 of Book 2

48	• Earning analysis • Calculation for Earning per share • Dividend per share • Price earnings ratio • Dividend yield • Return on investment (DU- PONT APPRAOCH)	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 13 of Book 1 Chapter 17 of Book 2
49	Analysis of financial statements • Comparative statements analysis • Common size analysis • Trend analysis • Ratio analysis • Cash flow analysis • Fund flow analysis	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 13 of Book 1 Chapter 17 of Book 2
50	**Technical analysis** • Basic tenets and Premises of Technical Analysis • Dow theory • Elliott wave theory	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3
51	• Tools and techniques of technical analysis • Price and volume charts • Price pattern analysis • Market indicators • Support & Resistance level • Relative Strength Index • Technical indicators • Moving average • Charting Techniques	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3
52	• Difference between fundamental and technical analysis • Efficient Market Hypothesis • Forms of Market Efficiency: Weak form of EMH ;Semi-strong form of EMH ;Strong form of EMH • Market Inefficiencies	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3

53	• Understanding the difference between the concept of Fundamental, technical and EMH. • Analyzing live market stocks through fundamental and technical charts and identifying the trends in it.	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3
54	• Criticism or weakness of technical analysis • Implications for investment policy • Discussion on case study	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3
55	• Introduction to the Concept of Behavioral Finance • how Behavioral Finance differs from the tenets of traditional finance	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3
56	• Assumptions, Biases, Errors and Irrationalities that can affect Investment Behavior, • Takeaway from Behaviorists arguments.	• Lecture • Class Room Discussion • Understanding the concept with real time data	Chapter 14 of Book 1 Chapter 10 of Book 2 Chapter 6 of Book 3

3.2.1. INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

1. **GENERAL INFORMATION**

No. of Credits per week 4
No. of Hours per week 4

2. **PERSPECTIVE OF THE COURSE**

Good return is the hallmark of a good investment. Investing surplus funds for generating some returns is common among individuals and organizations. When a business enterprise has idle funds for a certain period of time, it is prudent on the part of the enterprise to invest it wisely and generate decent returns, the onus of which lies on finance manager. Hence, it is essential for finance professional to have knowledge on the process of making and managing investments.

3. **COURSE OBJECTIVES AND OUTCOMES**

OBJECTIVES

To provide knowledge and skill in identifying various investment alternatives and choosing the suitable one.
To orient on the procedures and formalities involved in investing.

OUTCOME

By the end of this course, a student would learn

- Identifying investment goals and constraints
- Identifying investment alternatives
- Choosing the best / suitable alternatives
- Portfolio Management

4. COURSE CONTENT AND STRUCTURE

MODULE1: **THE INVESTMENT BACKGROUND AND FINANCIAL MARKETS 6 HOURS**

Concepts of Investments, Investment objectives, Process, Planning, Investment Vs Speculation, Gambling and Arbitrage: investment alternatives, Macro economic factors influencing investment, Investment environment in India : Individual Investment Life Cycle, the need for Investment Policy Statement. Approaches to Investment Decisions: Code of Ethics and Standards for investment professionals.

Financial Markets and Participants in Securities Market in India, New issue Market, Secondary market, Stock market Indices, Debt market, Money market Instruments and Recent development in Indian capital markets

MODULE 2: RISK AND RETURN ANALYSIS 6 HOURS

Concept of Realised and Expected Return. Real and Nominal rate of return Required return, Excess Return and holding period return ,Measurement of Ex -post and Expected Return, Continuous probability Distribution, Concept of Risk, Upside and Downside Risk, Sources of Risk, Types of Risk-Systematic and unsystematic Risk; Risk Aversion. Measurement of Risk of individual security, Standard Deviation, Coefficient of variation; Beta as a measure of Risk.

E 3: Module3: PORTFOLIO ANALYSIS: THE MECHANICS OF INVESTMENT 12 HOURS

Modern Portfolio Theory: Conceptual framework, Diversification and Portfolio Risk; Markowitz Risk Return optimization: The Mathematical Model, Quantification of Portfolio Risk and Return: Effect of combining securities in Portfolio, Efficient Frontier, Computing Utility and Selection of Optimal Portfolio.

Single Index Model- Concept of alpha and Beta- Corner Portfolio, Sharpe's Portfolio Risk and Return, Security Characteristics line, Portfolio optimization and selection.

MODULE 4: CAPM AND ARBITRAGE PRICING THEORY 10 HOURS

Capital Asset Pricing Model, Construction of optimal portfolio with Risky and riskless assets ,The separation Theorem, Capital Market Line and Security Market Line - Applications of Security Market Line, Empirical Evidence of Capital Asset Pricing Model, Beta of CAPM.

Arbitrage Pricing Theory, Building of Arbitrage Portfolio, Return Generating process, Factor Model for Security Return volatility.

MODULE 5: PERFORMANCE EVALUATION AND REVISION OF PORTFOLIOS 10 HOURS

Performance Evaluation- Sharpe's Performance Index, Treynor's Performance Index and Jensen's Measure to identify the predictive ability, Information Ratio, Sortino's Ratio, Challenges in Performance management .
Portfolio Revision Methods- Investment Timing, Formula Plans Constant Dollar Value Plan, Constant Ratio Plan, Variable Ratio Plan

MODULE 6: SECURITY ANALYSIS AND BEHAVIOURAL FINANCE 12 HOURS

Fundamental Analysis: E-I-C approach. Variables used in E-I-C analysis. Technical Analysis Vs Fundamental Analysis. Efficient Market Hypothesis; Concept and Forms of Market Efficiency.
Technical Analysis: Basic tenets and Premises of Technical Analysis; Dow Theory, Price and volume charts, Moving Averages, Relative Strength Index, Rate of change, Stochastic Oscillators .
Behavioural finance and Technical Analysis, Introduction to Behavioural finance and how it differs from the tenets of traditional finance, Assumptions, Biases, Errors and Irrationalities that can affect Investment Behaviour, Takeaway from Behaviourists arguments.

5. PEDAGOGY

a) Lectures
b) Demonstrations using Excel
c) Practical Exercises – Individual and Group
d) Case Studies

6. **TEACHING/LEARNING RESOURCES**

ESSENTIAL READINGS

1. Shalini Talwar "Security Analysis and Portfolio Management", CENGAGE
2. Punithavathy Pandian, "Security Analysis and Portfolio Management", Vikas Publishing House Private Limited, Fifth Reprint Edition.
3.Fischer, E Donald and Jordan, J Ronald (2005); "Security Analysis and Portfolio Management", Prentice Hall of India Private Ltd., 6th Edition.
4.Bodie, Kane, Marcus and Mohanty (2009); "Investments", McGraw Hill Education (India) Private Limited, 8th Edition.
5.Ranganatham and Madhumathi (2005); "Investment Analysis and Portfolio Management", Pearson Education, First Edition.
6.Chandra, Prasanna , "Investment Analysis and Portfolio Management", McGraw Hill Education (India) Private Limited, 4th Edition.

REFERENCES

1.Haugen Robert (2003); "Modern Investment Theory", Pearson Education, 5th Edition.
2.Bhalla, V.K. (2006); "Investment Management", S. Chand; 12th Edition.
3.Hirschey and Nofsinger (2008); "Investments – Analysis and Behaviour", Tata McGraw Hill Publishing Company Limited, Special Indian Edition.
4.Avadhani V.A (2006), "Securities Analysis and Portfolio Management", Himalaya Publishing House, Eighth Revised Edition.
5.Sharpe, Alexander and Bailey (1996); "Investments", Prentice Hall of India Private Limited, 5th Edition.
6.Kevin (2008); "Security Analysis and Portfolio Management", Prentice Hall of India Private Limited, First Reprint Edition.
7.Maheshwari, Yogesh (2008); "Investment Management", PHI Learning Private Limited, First Edition.
8.Indian Institute of Banking and Finance (2004); "Technical and Fundamental Analysis of Companies", Taxmann Publications, First Edition.
9.Stock Market Book" (2005); Dalal Street Journal.
10."Survey of Indian Industry (2008); The Hindu.
11."The Layman's Guide to Mutual Funds" (2004), Outlook Publishing (India) Private Limited, First Edition

Q.P. Code : 61342

Fourth Semester M.B.A. (Day) Degree Examination,
September/October 2020

(CBCS – 2014-15 onwards)

Management

Paper 4.2.1 – INVESTMENT ANALYSIS AND MANAGEMENT

Time : 3 Hours] *[Max. Marks : 70*

SECTION – A

Answer any **FIVE** of the following questions. Each question carries **5** marks : **(5 × 5 = 25)**

1. Briefly explain the investment environment in India.

2. Define Risk. Distinguish between systematic and unsystematic risk.

3. What are the strategies adopted in Portfolio Revision?

4. Compute the risk return characteristic of an equally weighted portfolio of three securities whose individual risk and return are given in the following table, the correlation between Security A and B is –0.43 and the correlation between Security B and C is 0.21 and the correlation coefficient between Security A and C is –0.62 :

Security	Risk in Percentage	Return in Percentage
A	15	12
B	20	18
C	25	22

5. Sun Rise Company manages two mutual funds. The funds are index Fund and Equity fund. The data below provide the key statistical information :

	Return per cent	*Risk*	*Beta*	*r*
Equity Fund	19	18	1.49	.83
Index Fund	13	16	1.08	.68
Market	14	10	1.0	1.00
R_f	5			

(a) According to Jenson method which fund performs well?

(b) In your opinion, which fund consists more of systematic risk?

6. Stocks *X* and *Y* display the following returns over the past three years :

Year	*Return*	
	X	*Y*
1994	14	12
1995	16	18
1996	20	15

(a) What is the expected return on portfolio made up of 40 per cent of *X* and 60 per cent of Y?

(b) What is the standard deviation of each stock?

(c) Determine the correlation co-efficient of stock *X* and *Y*.

(d) What is the portfolio risk of a portfolio made up of 40 per cent *X* and 60 per cent *Y*?

7. You have a portfolio that consists of 35% Microsoft stock, 35% Amazon stock and 30% GE stock. Microsoft has a beta of 1, Amazon has a beta of 3.0, and GE has a beta of 0.5. Treasury bills (the risk free asset) currently offer a return of 4% and the expected return on the market is 11.5 %. What return should you expect on your portfolio according to the CAPM?

SECTION – B

Answer any **THREE** of the following questions. Each question carries **10** marks : **(3 × 10 = 30)**

8. Mr. John is a risk cautious person. He is advised by a friend to buy the following stocks in equal proportion and bits of information regarding the stocks are given below :

Company	*β*	Unsystematic risk
A	0.84	5
B	1.27	12
C	1.17	18

The market return variance is 25. What is the portfolio risk according to Sharpe's model?

9. Stocks *X* and *Y* had the following returns over the past 5 years :

Year	*Return*	
	X	*Y*
1995	9	11
1996	-10	-13
1997	15	19

Year	*Return*	
	X	*Y*
1998	17	21
1999	21	15

Is it advisable to have a combination of both the stock in a portfolio?

10. Explain Dow Theory in detail.

11. Explain Arbitrage pricing theory with suitable examples.

SECTION – C

(Compulsory)

12. Case Study : **(1 × 15 = 15)**

Determine the optimum portfolio from the following data :

Security	Return in %	Beta of Security	Unsystematic Risk
1	15	1	50
2	17	1.5	40
3	12	1	20
4	17	2	10
5	11	1	40
6	11	1.5	30
7	11	2	40
8	7	0.8	16
9	7	1	20
10	5.6	0.6	6

The risk free rate of return is 5% and variance of market is 10%.

No. of Printed Pages : 3

PG-616

IV Semester M.B.A. (CBCS) Examination, July - 2019

MANAGEMENT 10682

4.2.1 : Investment Analysis and Management

Time : 3 Hours Max. Marks : 70

SECTION - A

Answer **any five** of the following questions. Each question carries **five** marks.

1. 'Risk can be minimized by investing in a portfolio'. Explain. **5x5=25**

2. What are the assumptions used in Capital Asset Pricing Model ? Explain briefly.

3. What is Market Efficiency ? Explain the forms of Market Efficiency.

4. Consider the following information on two stocks X and Y :

Year	Return on X(%)	Return on Y(%)
2017	12	10
2018	18	16

You are required to determine :

(i) Expected return on portfolio containing X and Y in the proportion of 60% and 40% respectively.

(ii) The standard deviation of return from each of the two stocks.

(iii) The covariance of returns from two stocks.

5. The returns of Securities A and B are given below :

Probability	Security - A	Security - B
0.50	4	0
0.40	2	3
0.10	0	3

Give the security of your preference. The security has to be selected on the basis of risk and return.

P.T.O.

6. Pet Airways stock is selling at ₹ 28 and will pay dividends of 10% this year. If expects to hit ₹ 35 in one year and its beta is estimated at 1.95. The market risk premium is 8.6% and the T-bill is yielding 6%. Is Pet Airways a good investment ? Explain. (Face value = ₹ 1)

7. Cindrella Mutual Fund has the following assets in scheme Rudolf at the close of the business on 31st March 2018.

Company	No. of Shares	Market Price Per Share
N Ltd.	25000	₹ 20
D Ltd.	35000	₹ 300
S Ltd.	29000	₹ 380
C Ltd.	40000	₹ 500

The total number of scheme Rudolf is 10 lakhs. The scheme Rudolf has accrued expenses of ₹ 2,50,000 and other liabilities at ₹ 2,00,000. Calculate the NAV per unit of the scheme Rudolf.

SECTION - B

Answer **any three** of the following questions. Each question carries **ten** marks. **3x10=30**

8. "Fundamental Analysis provides an analytical framework for rational investment decision making". Discuss.

9. Discuss the key macro economic variables and their impact on stock markets.

10. An investor has decided to invest ₹ 1,00,000 in the shares of two companies, namely ABC and XYZ. The projections of the returns from the shares of two companies along with their probabilities are as follows :

Probability	ABC (%)	XYZ (%)
0.20	12	16
0.25	14	10
0.25	– 7	28
0.30	28	– 2

You are required to :

(a) Comment on the return and risk of investment in individual securities.
(b) Compare the risk and return of the two shares with a portfolio of these shares in equal proportions.
(c) Find out the proportion of each of the above shares to formulate minimum risk portfolio.

11. The return and market portfolio for a period of four years are as under :

Year	% of Return of Stock B	% Return of Market Portfolio
1	10	8
2	12	10
3	9	9
4	3	– 1

For Stock B you are required to determine :

(i) Characteristic line.

(ii) The systematic and unsystematic risk.

SECTION - C

Case Study (Compulsory)

12. The following table gives an analyst's expected return on two stocks for a particular market returns : **1x15=15**

Market Return	Aggressive Stock	Defensive Stock
6%	2%	8%
20%	30%	16%

(a) What are the betas of the stocks ?

(b) What is the expected return on each stock if the market return is equally likely to be 6% or 20% ?

(c) If the risk free rate is 7% and market return is equally likely to be 6% or 20%. What is the SML ?

(d) What are the alphas of two stocks ?

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IV Semester M.B.A. (Day) (CBCS) Examination, July - 2019

MANAGEMENT 10693

4.2.2/4.6.2 : International Financial Management

Time : 3 Hours Max. Marks : 70

SECTION - A

Answer **any five** of the following, each question carries **5** marks. **5x5=25**

1. Distinguish between a forward and a future contract. Which of the two is more popular ? Why ?

2. Explain the purchasing power parity theory and the rationale behind it.

3. Write a note on the developments in the European Monetary union.

4. If exchange rate at the end of 2016-17 is ₹ 66.21/US $ and if the rate of Inflation in India and USA during 2017-18 is 7% and 4% respectively, find
   (a) Inflation rate differential between the two countries and
   (b) The exchange rate at the end of 2017-18.

5. An exporter has to surrender £ 100.000 to a bank, Rate of £ against ₹ is 97/97.15, the bank charges a commission of 0.25%. If the transit time fixed by RBI is 20 days and the rate of interest charged by the bank is 10%. Find out the net proceeds to be credited to exporters A/c.

6. On August 2nd New York quoted the DM was $ 0.6875/DM and FFr was quoted $ 0.5133/FFr. If on this date Paris was quoting 2.7500 FFr per DM and 5.6875 FFr/$. What are the incentives for Arbitrage ?

7. Grewal U.K., the British subsidiary of strain U.S. has Current Assets of £ 4 million, fixed assets of £ 5 million, the current liabilities of £ 4 million. Grewal has no long term liabilities.
   (a) Calculate Grewal UK's translation exposer under all the four translation methods.
   (b) If the £ is assumed to be the functional currency and it depreciates from $ 1.80 to $ 1.70, calculate the FASB-52 translation gain (loss) that will be reflected in the CTA account.

P.T.O.

PG – 601

IV Semester M.B.A. Degree Examination, July 2018
(CBCS Scheme)
MANAGEMENT
4.2.1 : Investment Analysis and Management

Time : 3 Hours Max. Marks : 70

SECTION – A

Answer **any five** of the following questions. **Each** question carries **five** marks : **(5×5=25)**

1. Discuss in brief any five macro-economic factors influencing investments in India.

2. Explain the financial and non-financial factors to be considered in Company Analysis.

3. What is a Mutual Fund ? Explain the different types of Mutual Fund in brief.

4. A financial analyst is analyzing two investment alternatives stock A and stock B. The estimated rates of return and their chances of occurrence for the next year are given below :

Probability of Occurrence	Rate of Return (%)	
	A	B
0.20	22	5
0.60	14	15
0.20	– 4	25

i) Determine expected return. Variance and standard deviation of A and B.
ii) Is 'Stock B' comparatively riskless ?

P.T.O.

5. The following information are available with respect of Krishna Ltd,.

Year	Krishna Ltd., Average Share Price Rs.	Dividend per share Rs.	Average Market Index	Dividend Yield	Return on Government Securities
2013	245	20	2013	4%	7%
2014	253	22	2130	5%	6%
2015	310	25	2350	6%	6%
2016	330	30	2580	7%	6%

Compute the Beta value of the Krishna Ltd., at the end of 2016 and state your observation.

6. Stocks A, B and C display the following parameters.

	A	B	C
Expected Return	15	20	25
Expected Variance	9	16	4

If an Investor has to choose two securities from this which should he select.

7. The return of Security L and Security K for the past five years is given below :

Year	Security L Return (%)	Security K Return (%)
2013	10	11
2014	04	– 6
2015	05	13
2016	11	8
2017	15	14

Calculate the risk and return of portfolio consisting of the above two securities in equal weights.

SECTION – B

Answer **any three** questions. **Each** question carries **ten** marks : **(3×10=30)**

8. Discus the systematic and unsystematic risks associated with the investments.

9. Explain the assumptions, proposition and limitations of Markowitz Modern Portfolio Theory.

10. Mr. A has invested in three Mutual Fund Schemes as per the details given below :

	MF 'A'	MF 'B'	MF 'C'
Date of Investment	01-11-2017	01-02-2018	01-03-2018
Amount of Investment	Rs. 1,00,000	Rs. 2,00,000	Rs. 2,00,000
NAV at entry date	Rs. 10.30	Rs. 10.00	Rs. 10.10
Dividend received up to 31-03-2018	Rs. 2,850	Rs. 4,500	Nil
NAV as on 31-03-2018	Rs. 10.25	Rs. 10.15	Rs. 10.00

Assume 1 year = 365 days.

Show the amount of rupees up to two decimal points.

You are required to find out the effective yield (up to three decimal points) on per annum basis in respect of each of the above three Mutual Fund (MF) schemes up to 31-03-2018.

11. An investor wants to build a portfolio with the following four stocks. With the given details, find out his portfolio return and portfolio variance. The investment is spread equally over the stocks. Market Return = 11 and Market Return Variance = 26.

Company	α	β	σ_{ei}^2
Sneha	0.17	0.93	45.15
Neha	2.48	1.37	132.25
Asha	1.47	1.73	196.28
Priya	2.52	1.17	51.98

SECTION – C

This is a compulsory question carrying **fifteen** marks : **(1×15=15)**

12. ***Case study.***

An investor holds two stocks A and B. An analyst prepared ex-ante probability distribution for the possible economic scenarios and the conditional returns for two stocks and the market index as shown below :

Economic Scenario	Probability	Conditional Returns (%)		
		A	B	Market
Growth	0.40	25	20	18
Stagnation	0.30	10	15	13
Recession	0.30	– 5	– 8	– 3

The risk free rate during the next year is expected to be around 11%. Determine whether the investor should liquidate his holdings in stocks A and B or on the contrary make fresh investments in them. CAPM assumptions are holding true.

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IV Semester M.B.A. Degree Examination, July 2016

(CBCS)

MANAGEMENT

Paper – 4.2.1 : Investment Analysis and Management

Time : 3 Hours Max. Marks : 70

SECTION – A

Answer **any five** questions. **Each** question carries **five** marks : **(5×5=25)**

1. Distinguish between investments and speculation.

2. What is efficient market hypothesis ?

3. Discuss various types of risk with example.

4. Sekhar has a portfolio of five stocks with the following expected market value and returns.

Stocks	Market value	Return
A	20,000	10%
B	25,000	18%
C	30,000	15%
D	1,00,000	12%
E	1,000	8%
	1,76,000	

Determine their expected return.

P.T.O.

5. Mr. Arjunan received a bonus of Rs. 50,000 from his company. He wants to invest the money in two stocks. After a careful study of the stocks market he selected Rock and Reed Corporations The expected return in Rock(S) is 14 percent and standard deviation of return is 22 percent. The return from the Read Corp(G) is slightly higher being 16 percent and at the same time the standard deviation of return is also higher being 25 percent. The correlation coefficient between them is 0.5. Help him to build a minimum risk portfolio.

6. The X/Y Company stock's return depends heavily on the market return, the beta being 1.4, the risk free rate of return is 8 percent and the Market return is 15 percent.
   a) Determine the expected return for XY stock.
   b) What happens to expected return, if the market return increases to 20 percent ?
   c) What happens to the return if beta falls to .90 while the other inputs remain the same ?

7. Describe the CAPM model. Give the significance of SML and CML.

SECTION – B

Answer **any three** questions. **Each** question carries **ten** marks : **(3×10=30)**

8. Explain the Markowitz model of portfolio analysis and selection.

9. Distinguish between Fundamental analysis and Technical analysis.

10. Sun Rise Company manages two mutual funds. The funds are Index Fund and Equity Fund. The data below provide the key statistical information.

	Return per cent	Risk	Beta	r
Equity Fund	19	18	1.49	.83
Index Fund	13	16	1.08	.68
Market	14	10	1.0	1.00
R_f	5			

   a) According to Jensen method which fund performs well.
   b) In your opinion, which fund consists more of systematic risk.
   c) What is the meaning of alpha in Jensen method ?

11. Determine the relationship between assets R and S return with the following data :

Probability of occurrence	Annual Returns	
	R	S
0.2	– 8	– 9
0.4	12	– 4
0.3	– 6	10
0.1	9	– 11

SECTION – C

Case study : **(1×15=15)**

12. A portfolio manager has got the following information about several stocks. He has to build a optimum portfolio for his client without short sales :

Security	Expected return	β	α_{ei}^2
A	22	1.0	35
B	20	2.5	30
C	14	1.5	25
D	18	1.0	80
E	16	0.8	20
F	12	1.2	10
G	19	1.6	25
H	17	2.6	30

The market index variance is 12 percent and the risk free rate of return is 7 percent.

PG – 876

IV Semester M.B.A. Degree Examination, July 2017
(CBCS)
MANAGEMENT
4.2.1 : Investment Analysis and Management

Time : 3 Hours Max. Marks : 70

Instruction : *Answer* ***all*** *the Sections.*

SECTION – A

Answer **any five** of the following questions. **Each** question carries **five** marks. **(5×5=25)**

1. What is 'Investment' ? How is it different from Speculation and Gambling ?

2. Briefly explain Dow theory.

3. Distinguish between CML and SML as per CAPM.

4. The estimated factor sensitivities of TEC to the five macro-economic factors are given in the table below. The table gives the market risk premium to each of these factors.

	Factory Sensitivity	Risk Premium (%)
Confidence Risk	0.25	2.59
Time horizon Risk	0.30	– 0.66
Inflation Risk	– 0.45	– 4.32
Business-cycle Risk	1.60	1.49
Market-timing Risk	0.80	3.61

Use the APT model to calculate the required rate of return for TEC using these estimates. The treasury bill rate is 4.1 per cent.

P.T.O.

5. A stock costing Rs. 150 pays no dividends. The possible prices at which the stock may be sold for at the end of the year with the respective probabilities are :

Price	Probabilities
130	0.2
150	0.1
160	0.1
165	0.3
175	0.1
180	0.2

You are required to :

i) Calculate the Expected Return

ii) Calculate the Standard Deviation of Returns.

6. At present suppose R_f is 10% and the expected return on the market portfolio is 15%. The expected returns for four stocks are listed together with their expected betas.

Stock	Expected Return	B
Hindustan Zinc	17.0%	1.3
Asian Paints	14.5%	0.8
Maruti Udyog Ltd.,	15.5%	1.1
Purvi Electronics	18.0%	1.7

On the basis of these expectations, which stocks are overvalued and which are undervalued ? Assume assumptions of CAPM hold true.

7. The following are the data on five mutual funds :

Funds	Return	Standard Deviation	Beta
A	15	7	1.25
B	18	10	0.75
C	14	5	1.40
D	12	6	0.98
E	16	9	1.50

You are required to compute Reward to Volatility Ratio and rank these portfolios using :

- Sharpe Method and
- Treynor's Method

assuming the risk free rate is 6%.

SECTION – B

Answer **any three** questions. **Each** question carries **ten** marks : **(3×10=30)**

8. Explain in detail, the process for making and managing investments.

9. Explain in detail the concept of 'Efficient Market Hypothesis'. On what basis are the different forms of efficiency in markets are identified ?

10. The common stocks of Bajaj and TVS have expected returns of 15% and 20% respectively, while the standard deviations are 20% and 40%. The expected correlation co-efficient between the two stocks is 0.36. What is the expected value of return and the standard deviation of a portfolio consisting of (a) 40% Bajaj and 60% TVS ? (b) 40% TVS and 60% Bajaj ? Under both cases, in what direction should the correlation co-efficient move to bring the portfolio risk still lower ?

11. Mr. Suresh is constructing an optimum portfolio. The market return forecast says that it would be 15.5% for the next two years with the market variance of 12%. The risk-free rate of return is 5%. The following securities are under review. Find out the optimum portfolio.

Company	α	β	σ_{ei}
A	3.72	0.99	9.35
B	0.60	1.27	5.92
C	0.41	0.96	9.79
D	– 0.22	1.21	5.39
E	0.45	0.75	4.52

SECTION – C

12. **Compulsory** Question :

Case Study : **(1×15=15)**

You have recently graduated as a major in finance and have been hired as a financial planner by Radiant Securities, a financial services company. Your boss has assigned you the task of investing Rs. 1,000,000 for a client who has a 1-year investment horizon. You have been asked to consider only the following investment alternatives : T-bills, stock A, stock B, stock C and market index.

The economics cell of Radiant Securities has developed the probability distribution for the state of the economy and the equity researchers of Radiant Securities have estimated the rates of return under each state of the economy. You have gathered the following information from them :

Returns on Alternative Investments

State of the Economy	Probability	T-Bills	Stock A	Stock B	Stock C	Market Portfolio
• Recession	0.2	6.0%	(15.0%)	30.0%	(5.0%)	(10.0%)
• Normal	0.5	6.0	20.0	5.0	15.0	16.0
• Boom	0.3	6.0	40.0	(15.0)	25.0	30.0

Your client is a very curious investor who has heard a lot relating to portfolio theory and asset pricing theory. He requests you to answer the following questions :

a) What is the expected return and the standard deviation of return for stocks A, B, C and the market portfolio ?

b) What is the covariance between the returns on A and B ? Returns on A and C ?

c) What is the coefficient of correlation between the returns on A and B ? Returns on A and C ?

d) What is the expected return and standard deviation on a portfolio in which stocks A and B are equally weighted ? In which the weights assigned to stocks A, B and C are 0.4, 0.4, and 0.2 respectively ?

APPLICATION OF MARKOWITZ MODEL IN ANALYSING RISK AND RETURN A CASE STUDY OF BSE STOCK

Manas Pandey*

Abstract

In this paper the optimal portfolio formation using real life data subject to two different constraint sets is attempted. It is a theoretical framework for the analysis of risk return choices. Decisions are based on the concept of efficient portfolios. Markowitz portfolio analysis gives as output an efficient frontier on which each portfolio is the highest return earning portfolio for a specified level of risk. The investors can reduce their risks and can maximize their return from the investment, The Markowitz portfolio selections were obtained by solving the portfolio optimization problems to get maximum total returns, constrained by minimum allowable risk level. Investors can get lot of information knowledge about how to invest when to invest and why to invest in the particular portfolio. It basically calculates the standard deviation and returns for each of the feasible portfolios and identifies the efficient frontier, the boundary of the feasible portfolios of increasing returns.

Keywords: Efficient Portfolios, Portfolio Optimization, Efficient Frontier, Variance, Covariance, Risk and Return

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Introduction

The portfolio selection is really the process of delineating the efficient portfolio and then selecting the best portfolio from the set. The rational investors will obviously prefer to invest in the efficient portfolios i.e. the selection of the optimal portfolio thus depend on the investor's risk aversion or conversely on risk tolerance.

Portfolio optimization is a key idea in investing and Markowitz model (1952) developed by Dr. Harry Markowitz is also known as the

modern portfolio theory or portfolio selection through which the selection of optimal portfolio takes place since the basic elements of modern portfolio theory emanate from a series of propositions concerning rational investor behavior set forth by him and used mathematical programming and statistical analysis in order to arrange for the optimum allocation of assets within portfolio on the basis of a reward risk context. In other words, the optimal portfolio for an investor would be the one at the point of tangency between the efficient frontier and his risk return utility and he considered the variance in the expected return from investments and their relationship to each other in constructing portfolios.

Markowitz model assumed that investors move toward low level of return from high level of return for a given level of the risk , individual estimates the risk on the basis of return, in the analysis of risk and return to select the efficient portfolio the role of the Markowitz model is very significant and the investors decision based on the concept of efficient frontier. For optimal portfolio analysis, first step is that an investor needs to specify the list of securities eligible for selection or inclusion in the portfolio then to generate the risk return expectations for these securities expressed as the expected rate of return (mean) and the variance or standard deviation of the return. The expected return of assets is the weighted average of the return of the individual securities held in the portfolio. The variance and standard deviation of return are alternative statistical measures that are used for measuring risk in investment. This depends on their interactive risk i.e. how the returns of a security move with the returns of other securities in the portfolio and contribute to the overall risk of the portfolio. That is expressed in the following formula- Minimize portfolio risk

$$\sigma_p = \sqrt{\left[\sum_{x=1}^{N} w^2\sigma^2 x + \sum_{x=1}^{N}\sum_{x=1}^{N} w_x w_y c_{xy}\right]}$$

Where
Wx = amount invested in asset x
Wy = amount invested in asset y
Cxy = covariance between security x and y
N = number of security
$\sigma^2 x$ =variance or risk

From the above formula selection of optimum portfolio require the return for the period of holding for each of the securities included in the portfolio , the standard deviation of the return for each security and the covariance (or correlation coefficient) between each pair of securities among all securities from which the portfolio have to form.

Review of Literature

Michael J. Hartley and Gurdip S. Bakshi October 25, 1998 reported that they have developed an econometric methodology associated with the inverse of the portfolio selection problem. In particular, given a time series of actual observed portfolio of risky assets for a sample of investors, a set of socio-economic characteristics for each investor in the sample, and a time series of preceding rates of returns for the set of risky assets, the algorithm determines the parameter values in each investor's utility function and the associated parameters in the returns generating process. It also determines the optimal current portfolios at the same time for all sample members. The proposed econometric framework can, therefore, accommodate both homogeneous or heterogeneous expected returns and covariance matrix however; predictions about individual or panels of portfolio holdings can be provide powerful tests of asset pricing theories. Consequently, a natural question, in the present framework, is how to go from a micro-theory of the individual or institutional investor's asset- portfolio mix to the aggregate behavior of the market for risky and risk-free assets. If the set of 36 panel data represents a strained sample of individual/institutional investors, then by applying suitable sampling weights to the numerical solution values in the sample, one may develop an internally-consistent micro-macro model with no further restrictions on the functional forms of the underlying functional relationships-the investor's returns-generating process and the utility function-than the customary stipulations.

Michael J. Hartley and Gurdip S. Bakshi April 2004 reported that there paper has been devoted to a class of dynamic Markowitz's mean-variance portfolio selection problems. Taking into consideration of market trend and other factors, a discrete-time model that is modulated by a Markowitz chain was introduced. Aiming at complexity reduction, we use nearly completely decomposable transition matrices and weak convergence methods to derive the limit mean-variance portfolio selection problem based probability vector and the transition probability matrices under the weak topology. The associated weak convergence and the limit systems can still be obtained. As far as the limit mean-variance problem is concerned, for the cases discussed on the limit, we can design optimal (efficient) portfolios and derive efficient frontier see also the framework of LQ control with indefinite control weights. Then using the efficient portfolios of the limit problem, we constructed portfolios for the original discrete-time model and show that such portfolios are nearly efficient.

Heinz H Moller September 2005 University of Ziirich, reported that Markowitz model i.e. modern portfolio theory has developed to a highly sophisticated field of research. in addition it become more and more obvious that for a large class of insurance problems a separate analysis of actuarial and financial risks is inappropriate. Of course modern portfolio theory is typically applied to common stocks. However it can also be applied to these facts the increasing importance of new financial instruments and the availability of computer capacity explain the growing interest of actuaries in modern portfolio theory.

Beth Bower, June 2008 College of William and Mary, Williamsburg, VA Pamela Wentz, Millersville University, Millersville, reported that they looked at investment portfolio optimization. They created portfolios consisting of five stocks and a six-month bond by randomly selecting the stocks from th S&P 500. We take the data from July 1, 2004 to December 31, 2004 and use the Markowitz minimum variance model as well as the Mean Absolute Deviation model to determine the allocation of funds to each asset in each of the portfolios. We then compare the returns of the portfolios from January 3, 2005 to June 30, 2005 using a series of parametric and non-parametric tests.

Yansen Ali June 2008 Industrial Engineering Honors Program McCormick School of Engineering Northwestern University reported that after completing the study on the computational method in portfolio analysis, I was able to conclude that the single index model worked well in estimating the inputs to the basic Markowitz optimization model. This is shown by the comparable returns produced by the Markowitz model. Although the comparison is not completely accurate as their portfolio stocks are not wholly identical. There are certainly areas of improvement in this project, especially in the development of more advanced extension to the Markowitz optimization model. The current simplistic model can be the reason why the portfolio selection is small for all cases; the optimal portfolio only selects a maximum of 2 industries in all periods. This paper has also not looked in depth for potential biases in the single index model, which might affect the end results. From this project, I found that computational procedure can get as complicated as formulating a solution method, especially when large-scale data is involved. It is imperative that one plans a robust and systematic method in solving a theoretical model. When the right method is applied, it can lead to a better utility of the model and more efficient implementations.

Objectives of the study

- To know how to select optimal portfolio,
- To examine the relation between risk and return,
- To study the utility of Markowitz model,
- To analyze risk and return of the portfolio.

Source of data

The data used in the research is secondary in nature and has been collected from the relevant websites, journals, magazines and some periodicals.

Research design

For studies purpose alphabetically arranged top 30 companies listed in Bombay Stock Exchange (BSE) has been selected and one year's financial information from April 2009 to March 2010 of these companies has been collected. Randomly made six portfolios of the companies by including five companies in each group and selected one company from each portfolio by applying the Markowitz model.

Statistical tools

In the process of selecting the optimal portfolio, many statistical tools have been used for the calculation of the value of the risk and return of the stock. The input data of expected returns and covariance matrix were thus made ready for the next step in the analysis by calculating expected return as the difference between target price and current market price of each security, expressed as a percentage of current market prices. The covariance is calculated with monthly return for each company from the monthly closing prices. The monthly covariance between each pair of securities was converted into annual covariance by multiplying it with 12.

Variance

The variance or risk of a portfolio is not simply weighted average of the variances of the individual securities in the portfolio. The relationship between each security in the portfolio with every other security as measured by the covariance of return has also to be considered. The variance of a portfolio with only two securities in it may be calculated with the following formula.

$$\sigma^2_p = x_1^2\,\sigma^2_1 + x^2_2\,\sigma^2_2 + 2x_1x_2(r_{12}\,\sigma_1\,\sigma_2)$$

Where
σ^2_p = Portfolio variance.
x_1^2 = Variance of first security.
σ^2_1 = Variance of second security.
x_1 = Proportion of funds invested in the first security.
x_2 = Proportion of funds invested in the second security.
r_{12} =Correlation coefficient between the returns of first and second security.
σ_1 = Standard deviation of first security.
σ_2 = Standerd deviation of second security.

Covariance

Covariance is a measure of how returns of two securities move together. It is the statistical measure that indicates the interactive risk of a security relative to others in a portfolio of securities. The covariance between two securities x and y may be calculated using the following formula:

$$Cov_{xy} = \sum_{i=1}^{n}\left[Rx - \overline{Rx}\right]\left[Ry - \overline{Ry}\right]$$

Where
Cov $_{xy}$ = Covariance between x and y portfolio.
Rx = Return of security x.
Ry = Return of security y.
$\overline{Rx}$ = Mean return of security x.
$\overline{Ry}$ = Mean return of security y.
N = Number of observations.

Return

Return of a portfolio of assets is simply the weighted average of the individual securities held in the portfolio. The weight applied to each return is the fraction of the portfolio invested in that security. The formula for the calculation of expected portfolio return may be expressed as shown below:
Return of the portfolio

$$\left(\overline{R_p}\right) = \sum_{I=1}^{N} Xi \times \overline{Ri}$$

Where $\overline{Rp}$ = expected return of the portfolio,
Xi = proportion of funds invested in security I,
$\overline{Ri}$ = return of security i.

Analysis and Interpretation

Portfolio optimization is a key idea in investing. The selection of the optimal portfolio thus depend on the investor's risk aversion or conversely on risk tolerance. In the process of selecting the company for the portfolios the analysis of the return as well as risk has been taken place which is reflected by the relationship between increasing or decreasing of return and risk. Thus six companies from each month on the basis of their risk and return has been found.

Now these six companies of each month considered as a portfolio. In this way now there are twelve portfolios over a year. After this for the further analysis select one company's stock from each portfolio of whole month on the basis of performance of the securities. Now there were only twelve companies' securities. These twelve companies are now separated into the two semester then two companies from these two semester selected on the basis of the performance of securities in term of maximum or minimum risk and returns. After this process compare to these two securities to each other which are well performing in comparison to other companies or in comparison which company is performing well overall year and select that as a efficient portfolio and take decision for investment in that companies security. In this model, the objective function is to maximize total returns, constrained by maximum allowable risk level. Therefore the entire process of analysis and interpretation has been completed in the two parts which are discussed as follows:

Return of a portfolio

As a first step in portfolio analysis an investor needs to specify the list of securities eligible for selection or inclusion in the portfolio. Next he has to generate the risk return expectations for these securities. These are typically expressed as the expected rate of return (mean) and the variance or standard deviation of the return .The expected return of assets is the weighted average of the return of the individual securities held in the portfolio. Calculation of return, deviation and square of closing price of each security for one year from April 2009 to March 2010 by using the formula

$$\text{Return \%} = \frac{\text{Value of current month-value of previous month}}{\text{Value of previous month}} \times 100$$

$$\overline{Rx} = \frac{\sum Rx}{N}$$

deviation (σ) = Return % - $\overline{Rx}$

Table 1. List of return of 30 stocks for one year time period

	April 2009	May 2009	June 2009	July 2009	August 2009	Sept 2009	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	March 2010
ACC	13.24	19.91	-1.80	14.62	-8.24	1.31	-8.75	6.55	9.40	-0.75	5.99	2.98
B.Airtel	19.73	9.39	-2.14	-48.22	3.45	-1.46	-30.06	2.39	9.71	-6.78	-8.89	4.91
BHEL	9.80	31.62	1.35	1.08	3.89	0.45	-4.65	1.24	7.20	0.01	-2.25	2.44
DLF	38.10	74.66	-22.94	27.46	7.08	3.25	-15.52	-4.97	2.71	-7.84	-10.71	3.95
Grasim Indus.	12.79	18.42	9.70	18.60	-2.11	3.22	-21.24	9.20	4.06	4.70	3.99	4.31
HDFC	22.70	26.24	7.30	7.91	-2.22	12.20	-4.32	3.89	-298	-11.03	4.94	8.51
HDFC Bank	13.73	31.04	3.42	0.53	-2.02	11.77	-1.28	9.33	-4.07	-4.09	4.52	13.37
Hero Honda	10.66	13.23	4.25	14.85	-5.86	10.47	-6.22	9.91	-0.26	-9.19	13.69	9.62
Hindalco Ind.	3.76	57.29	2.07	15.91	5.64	21.73	-5.36	13.20	16.44	-8.40	9.51	12.68
Hindustan Lever	-1.53	-1.47	15.58	9.02	-10.77	1.15	7.65	0.81	-7.19	-7.80	-3.42	1.25
ICICI Bank	43.64	55.04	-2.52	5.13	-1.26	20.72	-12.73	9.46	1.32	-5.17	4.99	9.27
Infosys	13.84	6.28	10.92	16.15	3.31	8.26	-4.46	8.10	9.28	-4.93	5.04	0.52
ITC Ltd.	2.33	-1.30	3.70	31.29	-47.53	0.30	10.03	10.03	1.04	-2.70	-0.24	-7.27
Jaiprakash asso.	64.85	49.50	-1.18	17.46	-5.69	4.45	-11.42	7.38	-34.90	-6.26	-3.96	13.12
L& T	30.76	59.81	11.58	-3.93	4.05	7.37	-6.89	3.00	4.04	-15.15	9.95	3.80
M&M Ltd.	26.89	38.82	2.59	23.73	0.38	2.46	4.62	11.53	5.11	-5.68	-1.18	-45.88
Maruti Suzuki	5.24	25.24	4.30	32.64	1.66	18.25	-17.42	11.31	-0.31	-10.87	5.28	-3.24
NTPC	5.52	13.31	-9.47	10.54	-1.37	0.49	-1.08	-0.78	12.37	-9.10	-5.25	1.97
ONGC	11.00	35.86	-9.25	9.13	1.78	-1.17	-3.30	5.86	-1.79	-6.60	1.57	-1.66
Reliance comm..	23.11	42.27	-5.20	-4.92	-5.50	18.23	-42.87	-2.24	0.55	-1.76	-7.36	8.48
Reliance Inds.	18.35	26.34	-11.16	-3.27	2.40	9.83	-12.26	-44.97	2.50	-3.93	-6.55	9.88
Reliance Infra.	34.97	83.67	-6.21	0.63	-4.9	6.59	-13.36	-0.95	9.41	-9.89	-2.86	-0.56

SBI	19.80	46.29	-6.80	4.13	-3.91	25.97	-0.21	2.15	1.40	-9.32	-3.99	5.22
Sterlite Inds.	15.01	52.23	-2.38	6.10	4.71	14.82	-0.49	11.15	0.47	-12.67	3.79	8.51
Sun Pharma.	14.64	-5.14	-9.82	7.42	1.54	17.59	-1.26	5.45	3.44	-2.50	4.86	16.14
Tata Consult.	15.41	12.28	-44.31	35.08	0.11	17.52	1.11	9.74	9.10	-1.91	3.47	2.60
Tata Moters	34.41	38.93	-13.53	44.79	16.08	20.84	-4.46	16.97	19.93	-12.40	2.41	6.28
Tata Power	16.81	19.73	7.42	13.25	0.52	0.81	1.80	0.43	2.15	-5.24	-7.11	13.16
Tata Steel	15.56	70.68	-3.81	18.40	-8.30	20.28	-7.59	22.01	7.33	-7.87	0.82	10.29
Wipro	34.68	15.45	-1.02	29.92	12.25	9.26	0.98	3.50	8.03	-4.71	4.53	4.45

Risk of a portfolio

The variance of return and standard deviation of return are alternative statistical measures that are used for measuring risk in investment. These statistics measure the extent to which returns are expected to vary around an average over time. The calculation of variance of a portfolio is a little more difficult than determining its expected return. The variance per standard deviation of an individual security measures the riskiness' of a security in absolute sense. For calculating the risk of a portfolio of securities the riskiness of each security within the context of the overall portfolio has to be considered. This depends on their interactive risk i.e. how the returns of a security move with the returns of other securities in the portfolio and contribute to the overall risk of the portfolio.

Calculations of risk through Markowitz formula for minimization of risk

The calculation of risk by using Markowitz model in a following way - Minimize portfolio risk

$$\sigma_p = \sqrt{\left[\sum_{x=1}^{N} w^2\sigma^2 x + \sum_{x=1}^{N}\sum_{y=1}^{N} w_x w_y c_{xy}\right]}$$

Where
Wx = amount invested in asset x,
Wy = amount invested in asset y,
Cxy = covariance between security x and y,
N = number of security,
$\sigma^2 x$ =variance or risk.

For performing the portfolio analysis using the Markowitz method, we need the return for the period of holding for each of the securities to be considered for inclusion in the portfolio. We also require the standard deviation of the return for each security. In addition we have to know the covariance (or correlation coefficient) between each pair of securities among all securities from which we have to form the portfolio. In this method risk calculated for each portfolio and compared with the return percentage. In this process of comparison we selected that security from the each portfolio, which has the maximum return at minimum level of risk.

Table 2. List of deviation of 30 stocks for one year time period

	April 2009	May 2009	June 2009	July 2009	August 2009	Sept 2009	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	March 2010
ACC	7.74	14.41	-730	9.12	-13.74	-4.19	3.25	1.05	3.90	-6.25	-5.44	-2.52
B.Airtel	23.78	13.44	1.91	-44.77	7.5	2.59	-26.01	6.44	13.76	-2.73	-4.84	8.96
BHEL	5.45	27.27	-3.00	-3.27	-0.46	-3.9	-9.00	-3.11	2.85	-4.34	-6.6	-1.91
DLF	30.16	66.72	-30.88	19.52	-0.86	-4.69	-23.46	-12.91	-5.23	-15.78	-18.65	-3.99
Grasim Indus.	7.32	12.95	4.23	13.13	-7.58	-2.25	-26.71	3.73	-1.41	-0.77	-1.48	-1.16
HDFC	16.57	20.11	1.17	1.78	-8.35	6.07	-10.45	-2.24	-9.11	-17.16	-1.19	2.38
HDFC Bank	7.38	24.69	-2.93	-5.82	-8.37	5.42	-7.63	2.98	-10.42	-10.44	-1.83	7.02
Hero Honda	5.23	7.8	-1.18	9.42	-11.29	5.04	-11.65	4.48	-5.69	-14.62	8.26	4.19
Hindalco Ind.	-8.28	45.25	-9.97	3.87	-6.4	9.69	-17.4	1.16	4.4	-20.44	-2.53	0.64
Hindustan Lever	-1.79	-1.73	15.32	8.76	-11.03	0.89	7.39	0.55	-7.45	-8.06	-3.68	0.99
ICICI Bank	32.98	44.38	-13.18	-5.53	-11.92	10.06	-23.39	-1.2	-9.34	-15.83	-5.67	-1.39
Infosys	7.81	0.25	4.89	10.12	-2.72	2.23	-10.49	2.07	3.25	-10.96	-0.99	-5.51
ITC Ltd.	2.08	-1.55	3.45	31.04	-47.78	0.05	9.78	0.79	-2.95	-0.49	-7.52	13.15
Jaiprakash asso.	57.07	41.72	-8.96	9.68	-13.47	-3.33	-19.2	-0.4	-42.68	-14.04	-11.74	5.34
L& T	21.73	50.78	2.55	-12.96	-4.98	-1.66	-15.92	-6.03	-4.99	-24.18	0.92	-5.23
M&M Ltd.	21.61	33.54	-2.69	18.45	-4.9	-2.82	-0.66	6.25	-0.17	-10.96	-6.46	-51.16
Maruti Suzuki	-0.78	19.22	-1.72	26.62	-4.36	12.23	-23.44	5.29	-6.15	-16.89	-0.74	-0.26

NTPC	4.09	11.88	-10.9	9.11	-2.8	-0.94	-2.51	-2.21	10.94	-10.53	-6.68	0.54
ONGC	7.55	32.41	-12.7	5.68	-1.67	-4.62	-6.75	2.41	-5.24	-10.05	-1.88	-5.11
Reliance comm.	21.21	40.37	-7.1	-6.82	-7.4	16.33	-44.77	-4.14	-1.35	-3.66	-9.26	6.58
Reliance Inds.	19.42	27.41	-10.09	-2.2	3.47	10.9	-11.19	-43.9	3.57	-2.86	-5.48	10.95
Reliance Infra.	26.92	75.62	1.84	-7.42	-12.95	-1.46	-21.41	-9.00	1.36	-17.94	-10.91	-8.61
SBI	13.07	39.56	-13.53	-2.6	-10.64	19.24	-6.94	-4.58	-5.33	-16.05	-10.72	-1.51
Sterlite Inds.	6.57	43.79	-10.82	-2.34	-3.73	6.38	-8.93	2.71	-7.97	-21.11	-4.65	0.07
Sun Pharma.	10.28	-9.5	-14.18	3.36	-2.82	13.23	-5.62	1.09	-0.92	-6.86	0.5	11.78
Tata Consult.	10.39	7.26	-49.33	30.06	-4.91	12.5	-3.91	4.72	4.08	-6.93	-1.55	-2.42
Tata Moters	20.22	24.74	-27.72	30.6	1.89	6.65	-18.65	2.78	5.74	-26.59	-11.78	-7.91
Tata Power	11.5	14.42	2.11	7.94	-4.79	-4.5	-3.51	-4.88	-3.16	-10.55	-12.42	7.85
Tata Steel	4.08	59.2	-15.29	6.92	-19.78	8.8	-19.07	10.53	-4.15	-19.35	-10.66	-1.19
Wipro	24.9	5.67	-10.8	20.14	2.47	-0.52	-8.8	-6.28	-1.75	-14.49	-5.25	-5.33

Table: 3. List of invested amount in form of Rs. $1.0X10^9$ of 30 stocks for one year time period

	April 2009	May 2009	June 2009	July 2009	August 2009	Sept 2009	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	March 2010
ACC	2.01	2.11	2.53	3.02	3.19	2.07	1.36	1.6	1.84	2.05	1.4	1.96
B.Airtel	6.29	14.46	13.68	8.31	10.75	9.41	31.00	12.34	11.00	5.35	8.67	6.3
BHEL	9.04	9.59	8.98	9.72	6.49	5.9	64.41	4.82	6.19	4.78	3.2	4.28
DLF	2.13	8.41	36.42	39.23	27.32	29.04	27.94	25.05	20.63	15.08	13.61	12.3
Grasim Indus.	1.90	1.4	2.28	3.32	1.85	1.64	3.74	2.39	1.56	2.42	1.84	1.64
HDFC	7.04	9.76	6.22	9.17	5.81	4.86	4.64	3.89	3.75	4.42	2.96	3.62
HDFC Bank	4.94	2.05	4.26	5.61	3.61	3.01	2.55	8.17	3.15	4.19	3.96	3.28
Hero Honda	2.63	1.6	1.51	2.5	2.66	2.11	1.50	1.96	3.14	3.78	1.35	2.83
Hindalco Ind.	3.08	5.03	9.46	4.82	7.65	8.13	5.59	5.03	6.77	6.6	7.93	1.5
Hindustan Lever	2.43	2.82	1.72	4.92	2.63	1.77	1.55	1.56	1.47	2.43	1.58	1.87
ICICI Bank	5.94	6.77	6.41	1.07	6.09	6.15	20.21	17.99	69.78	8.94	10.88	5.86
Infosys	34.8	43.24	32.17	3.76	25.52	18.42	7.88	10.55	17.04	14.27	4.89	12.78
ITC Ltd.	2.22	2.89	5.7	5.68	2.62	2.63	2.92	2.58	1.93	2.52	1.9	3.07
Jaiprakash asso.	1.93	19.27	28.97	2.22	16.87	21.5	15.35	12.61	5.8	7.19	7.18	5.51
L& T	1.74	20.6	25.15	2.14	1.4	11.21	13.25	17.23	9.09	13.1	9.58	6.43
M&M Ltd.	1.61	2.14	3.18	4.64	5.28	4.14	4.39	3.99	3.15	4.06	2.63	3.62
Maruti Suzuki	3.68	2.97	1.92	3.9	4.87	5.73	5.24	4.38	3.49	5.35	3.16	3.28
NTPC	6.13	5.9	10.97	5.5	3.76	2.42	2.67	1.94	4.04	4.28	2.88	2.34
ONGC	5.65	9.94	7.88	12.78	7.34	6.4	3.64	3.53	2.25	3.3	2.33	3.46
Reliance comm.	15.87	21.36	28.7	18.98	10.74	13.13	20.21	9.07	6.24	5.71	3.09	2.83
Reliance Inds.	4.43	4.71	5.52	5.61	3.88	6.37	38.91	35.39	18.62	37.1	17.28	17.36
Reliance Infra.	3.19	3.2	2.83	3.2	1.6	1.06	13.77	13.22	8.54	7.35	5.52	5.88
SBI	22.2	2.71	2.42	2.33	1.54	1.9	35.26	31.1	26.17	21.09	18.46	14.98
Sterlite Inds.	6.53	1.08	1.01	1.64	1.24	9.62	87.49	75.15	57.98	6.56	5.95	5.77
Sun Pharma.	5.93	1.05	1.99	1.5	1.01	7.6	9.89	7.08	7.92	0.64	4.38	0.66
Tata Consult.	3.88	4.71	5.26	8.88	6.79	6.84	6.93	4.71	3.85	6.42	2.58	4.69
Tata Moters	8.04	6.64	9.49	10.74	18.45	16.49	13.21	11.99	13.25	10.04	8.45	51.25
Tata Power	1.83	1.89	21.15	2.42	2.22	1.42	2.08	2.15	1.22	1.73	1.52	4.46
Tata Steel	23.38	30.4	43.07	42.75	33.75	29.93	22.43	28.32	28.84	24.66	22.4	14.35
Wipro	2.25	2.64	2.18	2.86	2.42	1.91	2.98	2.22	2.76	4.36	1.38	2.22

Table 4. List of risk in 30 stocks for one year time period

	April 2009	May 2009	June 2009	July 2009	August 2009	Sept 2009	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	March 2010
ACC	20.44	155.89	53.36	51.46	54.08	--	63.78	--	--	36.41	**11.72**	12.98
Bharti Airtel	149.84	379.50	97.87	380.13	92.42	--	818.11	78.71	**141.71**	54.05	42.85	59.12
BHEL	**17.08**	828.55	156.23	172.41	72.08	--	**143.67**	--	--	89.80	23.73	25.87
DLF	64.28	561.69*	1127.32	772.15	**45.06**	**133.44**	663.08	323.21	101.51	245.90	253.96	51.37
Grasim Indus.	15.52	**50.91**	**22.60**	**51.36**	19.22	--	102.33	**8.47**	--	22.10	3.78	**6.36**
HDFC	**118.70**	437.98	44.40	64.35	54.47	33.16	59.05	7.16	26.01	87.83	6.63	14.49
HDFC Bank	38.85	**71.24**	24.95	46.04	34.55	**12.90**	27.31	24.09	25.82	**59.92**	8.18	25.23
Hero Honda	17.37	79.51	32.21	**38.24**	38.69	--	33.32	7.57	--	54.31	**12.37**	19.58
Hindalco Ind.	27.47	250.35	100.37	46.19	**54.64**	80.20	101.45	**4.30**	**21.77**	141.06	20.88	**13.55**
Hindustan Lever	16.01	145.23	38.33	72.49	35.89	--	**28.66**	--	--	39.01	6.81	8.99
ICICI Bank	**62.61**	1946.44	426.91	25.17*	302.83	**188.03**	489.55	27.09	164.34	235.73	197.18	50.74
Infosys	195.19	498.54	**61.40**	22.27*	91.13	50.65	224.86	39.64	334.75	160.31	27.55	68.11
ITC Ltd.	86.44	217.49	51.58	**20.73***	134.00	34.45	**114.55**	13.85	24.56	**47.83**	19.78	**49.42**
Jaiprakash asso.	112.76	991.64	277.90	30.15*	252.79	100.92	377.76	**3.76**	252.92	148.58	89.83	50.67
L& T	40.12	**1101.20**	79.32	23.15*	**96.30**	42.35	270.49	108.83	**72.76**	339.29	**26.83**	54.23
M&M Ltd.	**47.34**	**102.71**	12.48	95.04	**44.72**	25.18	**79.53**	26.88	23.68	68.71	20.06	186.59
Maruti Suzuki	62.70	134.67	**17.20**	**113.13**	37.38	**72.17**	137.57	**24.20**	34.35	105.11	**11.41**	35.93
NTPC	86.95	233.89	124.36	95.56	39.21	18.17	52.09	7.61	**49.16**	61.75	21.49	19.76
ONGC	131.95	532.96	103.66	167.68	64.99	51.35	144.23	16.04	29.24	58.97	10.85	27.98
Reliance comm.	343.14	884.52	206.78	158.27	96.16	217.06	918.16	40.23	32.76	**57.99**	30.50	**28.96**
Reliance Inds.	100.89	179.66*	73.52*	3.22*	17.21	70.30*	513.04	1547.94	82.24	274.55	122.23	188.16
Reliance Infra.	**93.63**	259.88*	32.06*	13.14*	22.28	6.19*	391.80	--	**58.90**	231.91	100.33	43.98
SBI	33.67	120.52*	37.85*	--	17.41	37.00*	319.80	107.30	147.30	383.49	214.57	--
Sterlite Inds.	51.00	**48.52***	**12.21***	**1.14***	**4.86**	61.48	**85.40**	**146.38**	469.37	142.00	30.47	**2.47**
Sun Pharma.	72.11	22.65*	13.03*	--	26.74	**31.06**	72.93	--	47.22	**74.85**	**6.87**	--
Tata Consult.	88.07	183.19	273.28	257.38	58.06	96.55	**61.57**	--	31.62	**130.82**	37.16	--
Tata Moters	171.23	**199.96**	268.80	326.56	**44.21**	**111.54**	253.91	**11.87**	**77.61**	274.50	103.50	403.08
Tata Power	94.08	245.47	**117.72**	--	38.27	28.29	80.40	--	23.11	101.74	49.88	27.73
Tata Steel	139.43	1822.63	668.96	284.79	668.68	265.31	438.34	294.21	124.49	502.93	242.81	**8.06**
Wipro	69.71	144.47	47.37	**44.56**	18.22	15.30	59.37	12.45	13.42	102.78	**16.60**	8.10

* The risk value will be in 1.0×10^{10}

Interpretation

The selection of top six securities from thirty security of BSE index for the month of April has been done on the basis of return and risk analysis by using Markowitz model and selected the ICICI bank, the investment in the ICICI bank is less risky with high return. In the month of May the performance of the HDFC Bank which has given good return with optimal risk among the six best performing securities, hence in the May month the HDFC Bank is the best security for investment. Whereas in the month of June the ratio of risk and return shows that the Hindustan Lever Limited has given best return. From

six portfolio of July month ITC Ltd. performance over the year was good. The maximum return of the ITC Ltd. at the low level of the risk, therefore in the July month the investment in the ITC Ltd. is less risky with high return. From above table it is clear that in the month of August the Tata Motors have a very good combination of Risk and Return, hence in the August month the Tata Motors is the best security for investment. In the month of September the Sun Pharmaceutical Industries has best return paying securities for investment. Through the selection of top six securities from thirty security of October month Hindustan Lever Limited which has best return among these six, hence in the October month the Hindustan Lever Limited is the best security for investment. In the month of November Hindalco Industries Ltd. has best for investment among the six companies from the point of view of risk and return. Once again the Hindalco Industries Ltd. has good return among other companies; hence in the month of December the Hindalco Industries Ltd. is the best available security for investment. The Grasim Industries, first textile company which has best return among other companies in the month January. In the month of February the ratio of return and risk of the company Hero Honda shows very good for investors. Above table reflect that the Sterlite Industries has best return among others, hence in the March the Sterlite Industries is the best for investment.

Table 5. Month wise top most company on the basis of return and risk

Month	Company	Return	Risk
April	ICICI Bank	43.64	62.61
May	HDFC Bank	31.04	71.24
June	Hindustan Lever Limited	15.58	38.33
July	ITC	29.92	44.56
August	Tata Motors	16.08	44.21
September	Sun Pharmaceutical Industries	17.59	31.06
October	Hindustan Lever Limited	10.03	114.55
November	Hindalco Industries Ltd.	13.20	4.3
December	Hindalco Industries Ltd.	16.44	21.77
January	Grasim Industries	4.70	22.10
February	Hero Honda Motors Ltd.	13.69	12.37
March	Sterlite Industries	8.51	2.47

In the above table the top securities of 2009 to 2010, the security of that month which has the top performance in respect of highest return at the level of the optimum risk. After analysis it was found that the ICICI Banks performance is best among the other companies for the first six months and the next six month the Hindalco Industries Ltd. performance was encouraging for the investors.

Concluding observation

The study present the results that display the difference between the returns and the risk based on Markowitz model. The Markowitz portfolio selections were obtained by solving the portfolio optimization problems for periods from April, 2009 to March, 2010. The basic solution approach to this problem is to implement the Markowitz model in finding an optimal portfolio selection in each month. The basic objectives behind Markowitz model were to achieve high returns or stable returns with low uncertainty. It helps in the detection of the optimum portfolio for getting the maximum return at the level of the minimum risk for invested fund. It is basically calculates the standard deviation and returns for each of the feasible portfolios and identifies the efficient frontier, the boundary of the feasible portfolios of increasing returns. Although the comparison is not completely accurate because of the large number or data required for calculation of the risk and return of the portfolio and as their portfolio stocks are not wholly identical, the returns data are still useful to reflect economic influence. The financial planners can help the investors/traders to arrive at the risk level that they can assume. If the investor specifies his risk level in terms of standard deviation of the portfolio return, the appropriate portfolio for him can be identified using the efficient frontier. Therefore, process compare to the securities to each month and then from each month to semester which were well performing securities in overall year and select that as a efficient portfolio and take decision for investment in that companies security. In this model, the objective function is to maximize total returns, constrained by maximum allowable risk level. Hence the final portfolio selection for an investor/trader requires the combination of portfolio analysis and financial planning.

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Performance Evaluation of Mutual Fund in India (A Case Study on SBI Mutual Fund)

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ABSTRACT: *Different investment avenues are available to investors. Mutual fund also offers good investment opportunities to investors.Mutual funds are device for pooling and investing money in a wide variety and number of securities, to obtain portfolio diversification and management efficiency in other words, Mutual funds are non banking financial intermediaries,which act as matchmakers bringing together the saving and investment opportunities. Mutual fund units provides to the investors in accordance with quantum of money invested by them. Investors of mutual funds are known as unit holders.The profits of losses are shared by investors in proportion to the investments.The Mutual funds normally come out with a number of schemes with different investment objectives which are launchrd from time to time.*
Keywords: *Intermediaries, Portfolio, Investment, Diversification.*

I. INTRODUCTION

A MUTUAL FUND is a professionally managed firm of collective investments that collects money from many investors and puts it in stocks, bonds, short term money market instruments, and /or other securities.

Mutual fund now represent as the most appropriate investment opportunity for most investors. As the financial marker become more sophisticated and complex, investor needs afinancial intermediary which provides the required knowledge,professional expertise on successful investment.

The fund manager ,also known as portfolio manager trades the fund underlying securities, realizing capital gains or losses, the investment proceeds are then passed along to the individual investors . Anybody,no matter what their age, or income should and can invest in mutual funds. Mutual funds are an easy and inexpensive way for an individual to capture the money that is to be made from stocks and b onds,without buying them directly.Invesating in mutual funds is the perfect way to save money for the short term and long term future, such as for, retirement,a car, a home ,a vacation and more.

II. OBJECTIVE OF THE STUDY

i- To study the Investor's perception towards the Mutual Fund.
ii- To study how the Respondents are influenced by factors of Mutual Funds?
iii- To know how Respondents prefer most at the time of investment by taking term/time period into consideration?
iv- To study the Respondents preference to keep their savings in different sectors of investment avenue:
v- How investors respond towards the Mutual Fund schemes of different Mutual Fund companies?
vi- To know why investors to prefer to Invest in SBI Mutual Fund?
vii- To study how age factor is responsible for (SIP- SBI MF).

III. RESEARCH METHODOLOGY

The present article is related to performance evaluation of different funds, consumers awareness and attitude which is based on data collection from different people investing their money in the SBI Mutual Fund.

Sources of Data-

A**) Primary Sources**

B) Secondary Sources

A) **Primary Source :**For collecting the primary data survey was conducted to find out the perception level, product attributes, brand awareness, brand loyalty etc. The data are collected in Bhubaneswar because it is commercial and educated city of Orissa.The data are collected through questionnaire.

B) **Secondary Source:** consists of all information from Mutual fund Staff, different websites, Books, Brouchure, Magazines, Newspapers.

IV. REVIEW OF LITERATURE

1- Ajay shah and Susan Thomas (1994) studied the performance evaluation of eleven mutual fund schemes and conceded that except one scheme other schemes earnes inferior return than the market in general.

2- R.A Yadav and Biswadeep Mishra (1996) have evaluated performance of 14 mutual funds scheme using monthly data. The study concluded that the funds as a whole performed well in terms of non risk adjusted measure of average returns and the fund manager of growth schemes adopted a conservative investment policy.

3- Amitabh Gupta(2000) has examined performance of Indian mutual funds in terms of six performance measures using weekly NAV data for73 mutual fund schemes from 1994-1999, he found that the schemes have shown a mixed performance during the period.

4- Sadhak(2003) investigates the making strategies and investment practice of Indian mutual fund .

5- Gupta (2002) examine the growth, regulatory framework and performance evaluation of Indian mutual fund and reported poor performance.

V. COMPANY PROFILE

SBI Mutual Fund is India's largest bank sponsored mutual fund and has an enviable track record in judicious investments and consistent wealth creation. The fund traces its lineage to SBI- India's largest banking enterprise. The institution has grown immensely since its inception and today it is India's largest bank,patronized by over 80% of the top corporate houses of the country.

SBI Mutual fund is joint venture between the state bank of india and Society General Asset Management , one of the world's leading fund management companies that manages over US $ 500 Billion worldwide.In twenty years of operation , the fund has launched 38 schemes and successfully redeemed fifteen of them . In the process it has rewarded it's investors handsomely with consistently high returns.

COMPETITORS

According to the market survey the main competitors of the SBI mutual fund are:(i)Birla sun Life Mutual Fund,(ii)HSBC Mutual Fund,(iii)ING Vysya Mutual Fund,(iv)Reliance Mutual Fund,(v)Tata Mutual Fund,(vi)HDFC Mutual Fund, (vii) Prudential ICICI-Alliance,(viii)Franklin Templeton,-LIC Mutual Fund,(ix)J M mutual Fund,(x)UTI Mutual Fund,(xi) Chola Mutual Fund and Many more.

PRODUCTS OF SBI MUTUAL FUND:

(i) Equity Scheme, (ii) Debt Schme,(iii) Balanced Scheme,(iv) Liquid Scheme

VI. DATA ANALYSIS AND INTERPRETATION

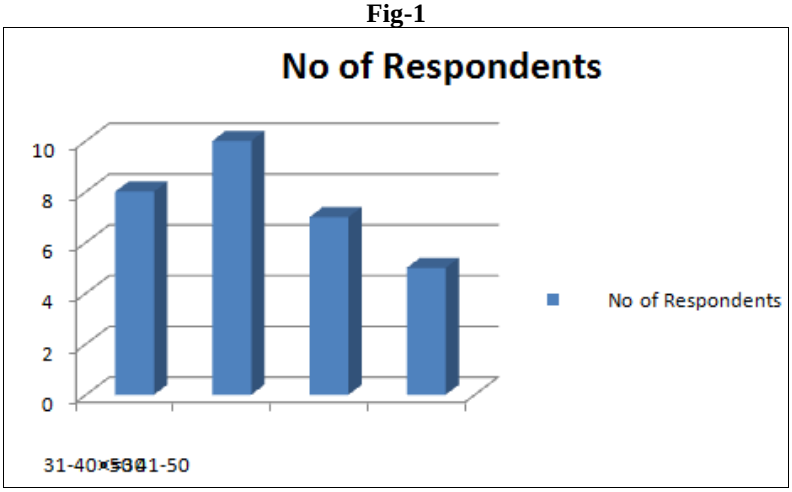
i- Investor's perception towards the Mutual Fund:

Table-1

Age of Investors	No of Respondents
<=30	8
31-40	10
41-50	7
>50	5

(**Sources:** SBI Mutuakl Fund News Letter, 2015-16)

Fig-1



Interpretation
On the basis of above analysis through table and diagram it is found that the investors under the age group of 31-40 is more interested in involving in Mutual Fund Sector. In this age group maximum respondeants are business men and private employees.

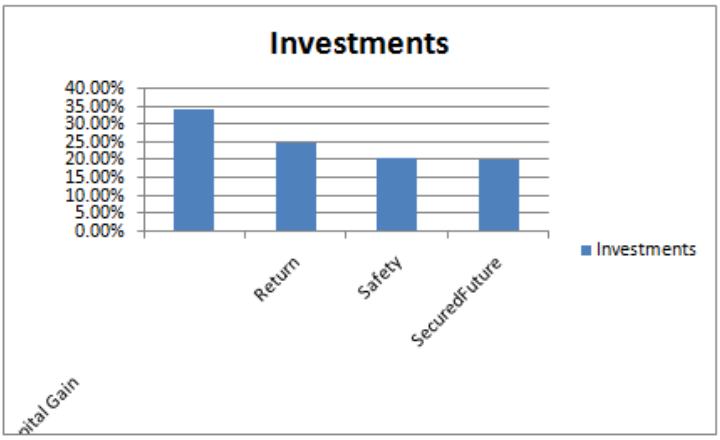
ii. Respondents are influenced by factors of Mutual Funds.

Table-2

Factors	Investments
Capital Gain	34.34%
Return	24.72%
Safety	20.69%
SecuredFuture	20.25%

(**Sources:** SBI Mutuakl Fund News Letter, 2015-16)

Fig-2



Interpretation:
The above analysis shows capital gain is 34.34%,return is 24.72%, safety is 20.69% and secured future is 20.25% for the purpose of investment. So Maximum respondents are preferring capital gain over other factors and preference is regular income.

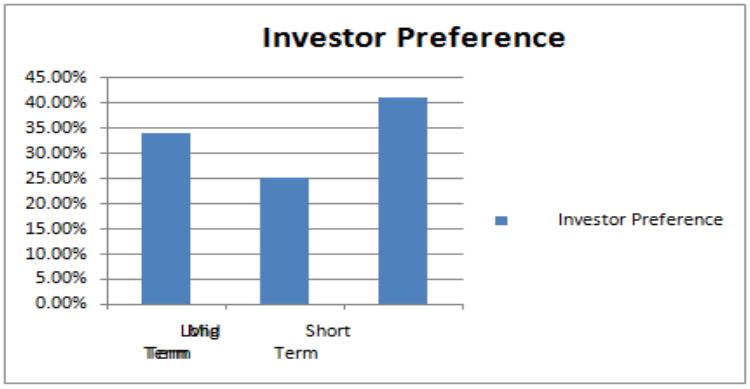
iii .Respondents prefer most at the time of investment by taking term/time period into consideration:

Table-3

Duration	Investor Preference
Long Term	33.95%
Mid Term	25.03%
Short Term	41.02%

(Sources: SBI Mutuakl Fund News Letter,2015-16)

Fig-3:



Interpretation

As we can see here Maximum respondents are preferring for short term and long term rather than mid term. Hence investors preferred to keep their money in long term basis through different equity schemes and also short term basis through various debt schemes.

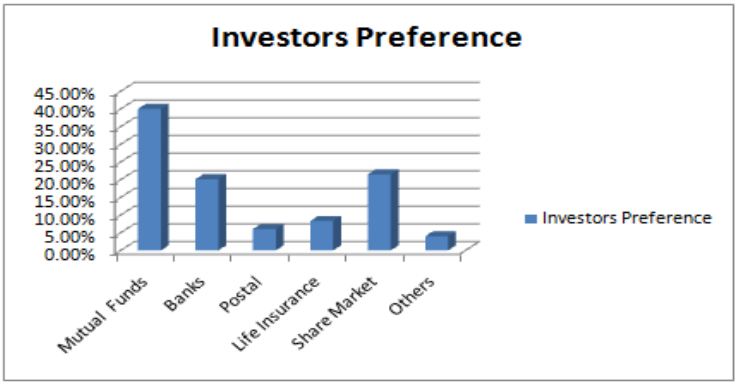
iv.Respondents prefer to keep their savings in different sectors of investment avenue:

Table-4

Sector	Investors Preference
Mutual Funds	40.02%
Banks	20.125%
Postal	6.03%
Life Insurance	8.32%
Share Market	21.51%
Others	4.00%

(**Sources:** SBI Mutuakl Fund News Letter,2015-16)

Fig-4:



Interpretation

From the above analysis we can say most of the respondents are preferring to invest mutual funds that is 40.02%.The percentage in case of other sectors are less in comparison to mutual funds.

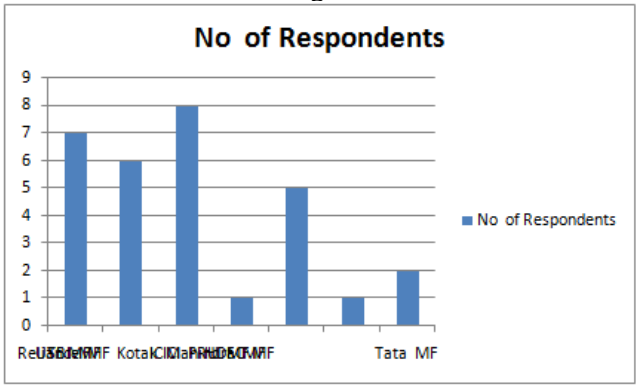
V. Preference of Mutual Fund schemes of different Mutual Fund companies:

Table-5

Category	No of Respondents
SBI MF	7
Reliance MF	6
UTI MF	8
Kotak Mahindra MF	1
ICICI PRU MF	5
HDFC MF	1
Tata MF	2

(**Sources:** SBI Mutuakl Fund News Letter,2015-16)

Fig-5:



Interpretation

Majority of preference goes to UTI MF being the oldest and govt. regulated Mutual Fund followed by SBI MF as principal trustee is SBI the largest bank operating over India.Preference towards other based on the funds past performance and marketing potential of the IMC operating in the Bhubaneswar city.also the graphb shows that the gradual shift of the mindset of people towards the private MF due to aggressive marketing ,variety of schemes and return potential.

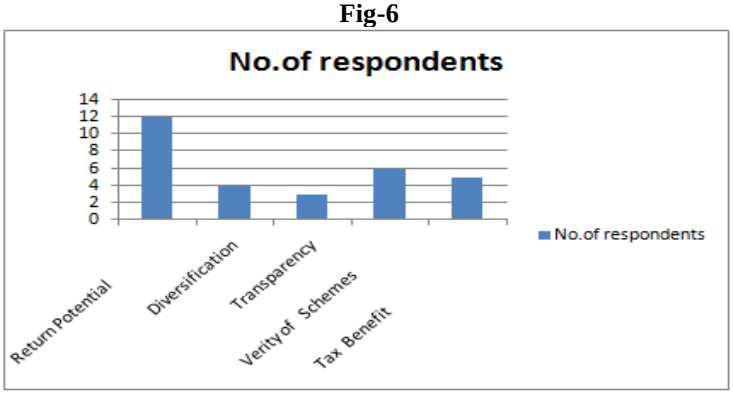
vi. Reason of Investment in SBI Mutual Fund:

Table-6

Category	No.of respondents
Return Potential	12
Diversification	4
Transparency	3
Verity of Schemes	6
Tax Benefit	5

(**Sources:** SBI Mutuakl Fund News Letter,2015-16)

Fig-6



Interpretation

After analyzing the respondents query maximum of the respondent consider the return potential ofr SBI mutual fund are the main reason of their investment as some of the equity schemes have performed exceedingly well and have beaten the respective benchmark by wide margins.Equity schemes like Magnum Comma Fund.Magnum Tax gain and Magnum Balanced Fund have won ICRA awards because of good performance.

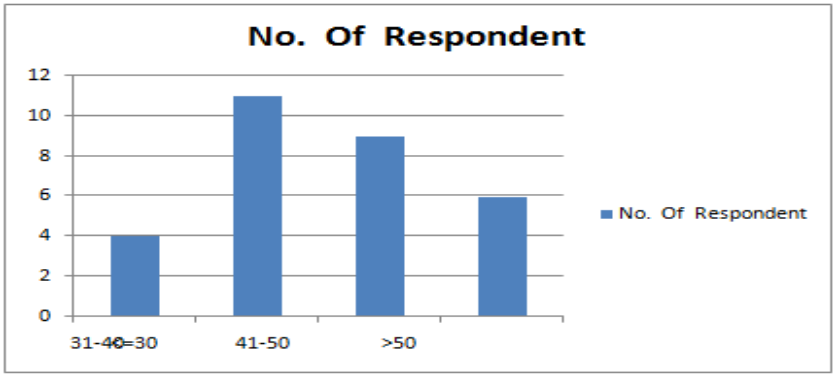
VII. Different Age Groups(SIP-SBI MF):

Table-7

Age Group	No. Of Respondent
<=30	4
31-40	11
41-50	9
>50	6

(**Sources:** SBI Mutuakl Fund News Letter,2015-16)

Fig-7



Interpretation
On the basis of above analysis more number of investors is preferred for investing through Systematic Invest Plan(SIP) on the age group of 31-40.

8.Investment by aware of people
Interpretation
If we look at total population only 60% people are aware of mutual fund. But one important thing here is that the entire 60% do not have investment in mutual fund.Out of these 38% public has investment in mutual fund and the remaining 62% public do not want to take risk or they do not know the procedure of investment in mutual fund or they do not know how to get liquidate it and how they will be benefitted.

VII. CONCLUSION

Due to simultaneous existence of number of channels the main problems being faced by AMC is of managing the multiple channels in delivering quality service to the customers.There need to be more emphasize placed on promotional activities to built up the brand image and also product awareness campaigns need to be staeted a lot of customers are not still aware of the range of options available under MF's and still look at it as equity based investment.

In conclusion, for products like MF with very low brand appeal and consumption values will have to depend heavily on distributors to push their product through as they cannot differentiate themselves from their competitors and being in margins to the business. Indeed Mutual funds may represent the only opportunity in which the investors can invest in an intelligent, diversified fashion in securities of uprising sectors.

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A Critical Analysis of Indian Mutual Funds Sector: A Case Study of Unit Trust of India (UTI) Mutual Fund, Bank of India (BOI) Mutual Fund and Tata Mutual Fund) "

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A Critical Analysis of Indian Mutual Funds Sector: A Case Study of Unit Trust of India (UTI) Mutual Fund, Bank of India (BOI) Mutual Fund and Tata Mutual Fund

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Abstract

Mutual Fund as an institutional investor plays a vital role in causing the stock market to function on sound and healthy lines. Worldwide, the mutual fund or Unit Trust as it called in some parts of the world has a long and successful history. The popularity of mutual fund has increased manifold. In developed financial markets, like the United States, Mutual Fund has almost over taken bank deposits and total assets of insurance fund. In the US alone there are over 5000 Mutual Funds with total assets over US $7000 billion.

In India, the mutual fund industry started with the setting up of Unit Trust of India in 1964. Public Sector Banks and financial institutions began to establish mutual funds in 1987. The private sector and foreign institutions were allowed to set up mutual funds in 1993. Today there are around 40 mutual funds and over 300 schemes with total assets of approximately Rs. 97000 crores. The paper presents an analysis of Mutual Fund Sector in India with the study of three significant companies of India.

Key words: *Mutual Fund, Capital Issue, Asset Management, Custodian, Trustee*

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1. INTRODUCTION

The Mutual Funds Industry has come of age. It has substantially aligned itself with the international order. Even though in the recent change with past the growth of the industry has not been enviable, the potential is enormous provided, however, the trust and confidence of the investors in won and dept up. They have not only enhanced the accountability of Fund manager but also strengthened the mechanism of investor protection, which is much more effective today then over before.

The reason of selecting Unit Trust of India (UTI) and Bank of India (BOI) and Tata Mutual Funds (TMF) is that three big companies are covering the major market share in Mutual Fund sector. UTI is distributing 80% of its earning to its shareholders while the industry average is only 67%. Thus, UTI is a very liberal distributor of income and an investor's friendly mutual fund. On the other hand, BOI is also distributing 43% dividend. Therefore, these two companies are very significant in mutual industry hence these two companies are taken for the case study purposes.

2. MUTUAL FUND

Mutual funds are in the form of Trust (usually called Asset Management Company) that manages the pool of money collected from various investors for investment in various classes of assets to achieve certain financial goals. We can say that Mutual Fund is trusts which pool the savings of large number of investors and then reinvests those funds for earning profits and then distribute the dividend among the investors. In return for such services, Asset Management Companies charge small fees. Every Mutual Fund/launches different schemes, each with a specific objective. Investors who share the same objectives invest in that particular Scheme. Each Mutual Fund Scheme is managed by a Fund Manager with the help of his team of professionals (One Fund Manage may be managing more than one scheme also).

Many persons have shared their experience insights, research and writings on mutual fund sector but a comparative study of UTI and BOI and Tata Mutual Funds has been made yet. This paper includes the origin and development of mutual funds, regulatory environment of mutual funds, inside of Mutual funds, mutual funds marketing, mutual fund industry- it size and growth, type and growth pattern of Mutual funds, investment pattern of mutual funds, investors protection and mutual funds. Evaluation of performance of Mutual funds, trace out problem of industry and these two companies and at last to provide suggestive mode to the industry and to the above two companies.

3. HYPOTHESIS

Mutual funds, like securities investments, are subject to market risks and there is no guarantee against loss in the Scheme or that the Scheme's objectives will be achieved. As with any investment in securities, the NAV of the Units issued under the Scheme can go up or down depending on various factors and forces affecting capital markets. Past performance of the Sponsor / the AMC / the Mutual Fund does not indicate the future performance of the schemes of the Mutual Fund. Investors in the Scheme are not being offered a guaranteed or assured rate of return.

UTI Mutual Fund is the leader of market as compared to BOI Mutual Fund and TATA Mutual Fund.

4. RESEARCH METHODOLOGY

Stage (1): Firstly, a survey of previous research works and studies existing literature related to mutual funds sector especially UTI and BOI mutual fund and Tata Mutual Funds has been made.

Stage (2): At second stage, research design has been made regarding the collection of data and analysis of data. Exploratory as well as descriptive design has been used in our research work so as to formulate research problem. Primary as well as secondary data have been compiled for this purpose by the following methods:-

Collection of primary Data

- Through observation;
- Through personal interviews;
- through questionnaire;

Collection of secondary Data

- Company profits & loss A/c and its internal records;
- Reports publication of financial institutions;
- Trade and technical journals;
- Magazines & Newspapers;
- Reports prepared by research scholars;
- Internet;

Stage (3): This stage is relating to sampling plan. A sampling plan has been made regarding the sampling unit, sample size and sampling procedure. To find out various problem faced by investors relating of UTI, and BOI and Tata mutual funds. we had circulated our questionnaire to 250 respondents (i.e. to investors) and 75 office bearer of UTI & BOI, management staff member etc. to get their opinions on various aspect of mutual funds.

Stage (4): This stage is relating with analysis and interpretation of data. In this stage we had made analysis regarding closely relate operations such as the mutual fund industry and growth investment pattern of mutual funds, income & expenditures of mutual funds. Thereafter, we have drawn our observations. Our findings and suggestions would hopefully be of immensely useful for planners as well as the management of the concerned companies.

Stage (5): Preparation of report is the last stage of this research project. Eventually, a report has been made from what is done by the researcher. In the report the researcher has made concluding observations and provided suggestive mode.

In India, the mutual fund industry started with the setting up of Unit Trust of India in 1964. Public Sector Banks and financial institutions began to establish mutual funds in 1987. The private sector and foreign institutions were allowed to set up mutual funds in 1993. Today there are around 40 mutual funds and over 300 schemes with total assets of approximately Rs. 97000 crores. This fast growing industry is regulated by the Securities and Exchange Board of India (SEBI). On problems in regulating mutual fund we have searched out we have provided appropriate suggestions so that investors can be protected properly.

The key points of our study are:

(a) To appraise the contribution of UTI and BOI mutual funds and Tata Mutual Funds in the development of mutual fund industry.

(b) To analyze critically the working, marketing strategies of UTI and BOI mutual funds and Tata Mutual Funds.
(c) To study the various types of Mutual Funds in India and also to study the various rules and regulation applied in the formation of Mutual Funds.
(d) To assess the need of regulating of Mutual Funds in India.
(e) To study the role & effectiveness of SEBI in protection of Investors investing in Mutual Funds. And we have also to make market survey for getting investors' opinions and AMC Executives Opinions to make this study worthwhile.

5. RESEARCH DESIGN

- The research work is based on primary and secondary data. The main sources of secondary data are various journals, periodicals, News Papers and SEBI's documents;
- Mutual Fund companies reports…etc. The study is mainly based on data compiled from Annual Reports of leading mutual funds, Annual Reports of those companies, Internet reports prepared by Research Scholars.

The Study is based on data of 30 leading Companies of Public and private sector. A sample survey technique has been adopted to elicit the opinions of various investors, company officers etc, regarding Mutual Fund operation and regulation by SEBI. For reaching on the conclusion various statistical techniques like average, ratio, percentage…etc from collected data have been used.

Technique of pictorial presentation of data like charts and graphs has also been applied. The time period under this study has been taken from the year 2000 and onwards. A suitable questionnaire is also prepared for collecting primary data.

6. WHY SEBI TAKEN BIRTH AFTER CAPITAL ISSUES (CONTROL) ACT (CCI)?

In India, Capital Issues (Control) Act, 1947 and the Securities Contracts (Regulation) Act, 1956 provided the necessary framework of regulation for issue of securities and the functioning of the securities market till 1992.

The main purpose of control on issue of capital was to prevent the diversion of investible resources to non-essential projects. It was used to regulate issue of bonus shares and capital reorganization of companies with a view to discourage issue of shares with disproportional voting results and adoption of sound methods, and techniques in floatation of companies.

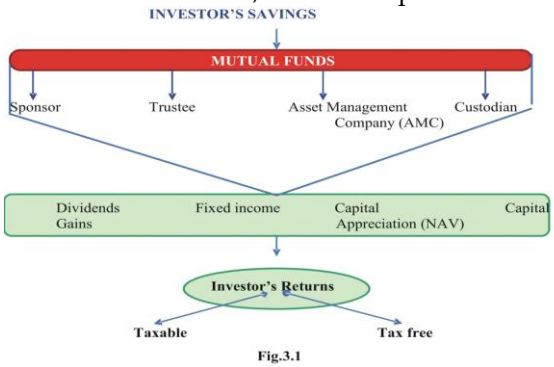


Fig.3.1
INVESTOR—MUTUAL FUND RELATIONSHIP

Mutual Fund is essentially, in Indian context, a trust formed with the objective of pooling savings of a number of persons and invests that saving in a variety of financial instruments viz. shares, debentures, bonds and other securities. Investments are made in accordance with the objective defined at the time of pooling savings. People with common investment objective come together and assign the task of investments to the trust.

7. TYPES OF MUTUAL FUND

Types of mutual Fund can be broadly discussed under two categories

I. By Structure
II. By Investment Objective

7.1 By Structure:

7.1.1 Open-ended schemes: These schemes would not have a fixed maturity. Units are bought and sold directly with the Mutual Fund. Nat Asset Value (NAV) of the scheme is calculated generally, on daily basis and units are bought and sold on NAV of the day after taking in to account load structure, if any.

7.1.2 Close-ended schemes: These schemes will have a predefined fixed maturity. One can invest in the scheme at the time of initial offering and thereafter, one can buy and sell units of the schemes through stock exchanges where they are listed. Generally speaking, market price of units would vary with the NAV of the scheme and this price would reflect demand and supply of units, investor's expectations and a variety of other conditions. Some close-ended schemes give an exit window at different interval to sell units directly to Mutual Fund at NAV related price**.**

Net Asset Value (NAV):

NAV is sum total of market value of assets of the fund net of liabilities, if any. NAV is calculated by following simple formula:

NAV= (Market value of investments + receivables + accrued income - liabilities - accrued expenses)/Number of outstanding units

7.2 By Investment Objective:

Growth Scheme: Objective of these schemes would be providing capital appreciation from medium to long-term perspective. A person looking for regular return should not invest in these types of schemes.

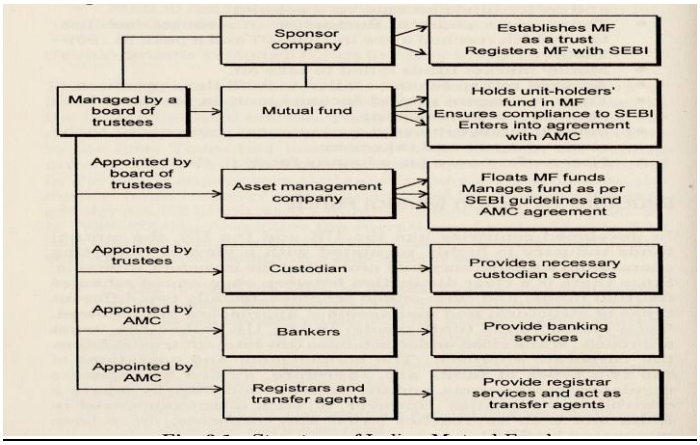
8. BENEFITS OF MUTUAL FUND

- Professional Management
- Diversification
- Liquidity
- Transparency
- Flexibility
- Low Cost
- Higher returns
- Well regulated

9. DRAWBACKS OF MUTUAL FUND

- Uncertain returns
- Over diversification
- High costs and confusing expense disclosures
- Uncertain tax liabilities
- Fund overload
- Unwieldy growth

10. STRUCTURE OF INDIAN MUTUAL FUNDS



The mutual fund is managed by the board of trustees or Trustee Company, and the sponsor executes the trust deeds in favor of trustees. The mutual fund raises money through the sale of units under one or more schemes for investment in securities in accordance with the SEBI guidelines. The trustees must see to it that the schemes floated and managed by the AMC are in accordance with the trust deeds and SEBI guidelines. It is also the responsibility to control the capital property of the mutual fund's schemes.

11. PERFORMANCE ANALYSIS OF UTI MUTUAL FUNDS

UTI Mutual Fund is managed by UTI Asset Management Company Private Limited (Estb: Jan 14, 2003) who has been appointed by the UTI Trustee Company Private Limited for managing the schemes of UTI Mutual Fund and the schemes transferred / migrated from UTI Mutual Fund.

No. of Scheme	107
No. of schemes including options	324
Equity Schemes	59
Debt Schemes	234
Short term debt Schemes	10

Performance Analysis of BOI Mutual Funds

The bank has a century old glorious history. The bank was founded on 7th September 1906 and has a glorious history of maintaining prudence and high standard of customer service Bank of India is the first Indian bank to open its branches in Japan, after World War II. Tokyo Branch was opened on 17th May, 1950 and Osaka branch was established on 20th October 1950. Over fifty-

three years of experience in global banking has endowed the bank with strong assets and correspondent relations with leading international banks. Investors of the BOIMF schemes are requested to redeem their investment by approaching the scheme's Registrars and Transfer Agents at the addresses given below:

- BOI Double Square Plus (1990) Scheme
- Rising Monthly Income (RMI-60) Scheme, 1990
- Festival Boinanza Growth Scheme (1991)
- Boinanza 80CCB Growth cum Tax Saving Scheme, 1992

12. PERFORMANCE ANALYSIS OF TATA MUTUAL FUNDS

Tata Sons Limited (TSL) is the principal investment holding company of TATAs. Through its operating consultancy divisions Tata Consultancy Services, Tata Consulting Engineers, Tata Economic Consultancy Services and Tata Financial Services, it provides a wide range of services in the areas of information technology, engineering, and financial services. Tata Mutual Funds can be seen as follows:

No. of Schemes	67
No. of schemes including options	233
Equity Schemes	37
Debt Schemes	158
Short-term debt Schemes	14

Note.BOI mutual funds are not available in the market but this company is selling other company's financial products.

New Challenges Faced by Mutual funds:

The small investors, is facing a fast-rising challenge in the Exchange-traded Fund. They are fighting for their investment in terms of dollars. Although ETFs are much smaller, some experts predict they ultimately will win the long-term confrontation.

"In a year such as 2008, when returns are low or negative, every 50 basis points [half of a percentage point] make a difference," said Tom Anderson, head of ETF research at State Street Global Advisors in Boston. "Because ETF fees on average are dramatically lower than those of mutual funds, the difference is huge."

13. FINDING AND RECOMMENDATIONS:

The four and a half decades old Indian fund industry has seen a remarkable change in character only since its deregulation in early 1990s. Indian mutual fund industry in its present form is still young as compared to most other economics. However, for an industry so young, it has shown remarkable sings of early maturity. The strong growth in Assets Under Management (AUM) and the ever increasing number of international asset managers setting up funds in India are testimony to the increasing attractiveness of Indian Markets as well as confidence in the overall India story.

Conclusions & Recommendations are as follows:

- Cause-related marketing must be clearly differentiated from charitable giving or sponsorships in any proposal for partnership involving one or more of the five mutual fund-related sharing concepts.

- It is important to recognise the overlap between Corporate Affairs and Marketing when it comes to cause-related marketing. Research both a company's charitable giving strategy as well as its business strategy. Build a proposal that fits both strategies. Involve both Corporate Affairs and Marketing in the process.
- Mutual fund companies do not perceive themselves as having excess profits that they should be using for social betterment. They believe that they are already giving generously to charity. However, they will listen to proposals that serve their business needs, such as enhanced image, new clients, and improved client retention. To gain a company's interest and attention, the charitable sector must be able to demonstrate clearly how the company's business needs can be met through partnership.
- A proposal for a partnership that can easily fit with a mutual fund company's existing systems and approaches has a higher probability of support than one which the company perceives as difficult to assimilate or as requiring significant resources to accommodate.

The Indian Mutual Fund industry is set for a future of sustained growth over the next decade with increasing participation from the retail segment. We can expect the industry to mature further and become a synonym to savings, as is the case in some of the developed countries. The retail potential is substantial and the various stakeholders can make specific interventions to unlock it. However, each player will need to develop its own unique growth path and have the specific levers – products, distribution, branding – optimized to the journey that it wants to traverse. Also, while the players need to gear up for the sustained growth scenario, it is equally important for the industry participants to build in sufficient defense mechanisms in their armory to ensure survival under the potential scenarios of downturn. The discussion made in this article indicates that the future of Mutual Funds in India is bright.

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A STUDY ON FUNDAMENTAL AND TECHNICAL ANALYSIS

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ABSTRACT
The unique nature of capital market instruments forces investors to depend strongly on fundamental factors in their investment decisions. These fundamental factors relate to the overall economy or a specific industry or a company. The performance of the securities that represent the company can be said to depend on the performance of the company itself. However, as companies are a part of industrial and business sector, which in turn are a part of overall economy, so even the economic and industry factors can affect the investment decision. The selection of an investment will start with fundamental analysis. Fundamental analysis examines the economic environment, industry performance and company performance before making an investment decision.

KEYWORDS: Capital market, fundamental factors, investment decisions.

INTRODUCTION

Fundamental analysis is the examination of the underlying forces that affect the well being of the economy, industry groups and companies. As with most analysis, the goal is to develop a forecast of future price movement and profit from it. At the company level, fundamental analysis may involve examination of financial data, management, business concept and competition. At the industry level, there might be an examination of supply and demand forces of the products. For the national economy, fundamental analysis might focus on economic data to assess the present and future growth of the economy.
To forecast future stock prices, fundamental analysis combines economic, industry, and company analysis to derive a stock's fair value called intrinsic value. If fair value is not equal to the current stock price, fundamental analysts believe that the stock is either over or under valued. As the current market price will ultimately gravitate towards fair value, the fair value should be estimated to decide whether to buy the security or not. By believing that prices do not accurately reflect all available information, fundamental analysts look to capitalize on perceived price discrepancies.

Fundamental Analysis is a method of evaluating a security by attempting to measure its intrinsic value by examining related economic, financial and other qualitative and quantitative factors. Fundamental analysts attempt to study everything that can affect the security's value, including macroeconomic factors (like the overall economy and industry conditions) and individual specific factors (like the financial condition and management of companies).

OBJECTIVES OF FUNDAMENTAL ANALYSIS

- ✓ To predict the direction of national economy because economic activity affects the corporate profit, investor attitudes and expectation and ultimately security prices.
- ✓ To estimate the stock price changes by studying the forces operating in the overall economy, as well as influences peculiar to industries and companies.
- ✓ To select the right time and right securities for the investment

THREE PHASES OF FUNDAMENTAL ANALYSIS

1) Understanding of the macro-economic environment and developments (Economic Analysis)
2) Analyzing the prospects of the industry to which the firm belongs (Industry Analysis)
3) Assessing the projected performance of the company (Company Analysis)

The three phase examination of fundamental analysis is also called as an EIC (Economy-Industry-Company analysis) framework or a top-down approach-

Here the financial analyst first makes forecasts for the economy, then for industries and finally for companies. The industry forecasts are based on the forecasts for the economy and in turn, the company forecasts are based on the forecasts for both the industry and the economy. Also in this approach, industry groups are compared against other industry groups and companies against other companies. Usually, companies are compared with others in the same group.
For example, a telecom operator (Spice) would be compared to another telecom operator not to an oil company.

Thus, the fundamental analysis is a 3 phase analysis of

a) The economy
b) The industry and
c) The company

Phase	Nature of Analysis	Purpose	Tools and techniques
FIRST	Economic Analysis	To access the general economic situation of the nation.	Economic indicators
SECOND	Industry Analysis	To assess the prospects of various industry groupings.	Industry life cycle analysis, Competitive analysis of industries etc.
THIRD	Company Analysis	To analyse the Financial and Non-financial aspects of a company to determine whether to buy, sell or hold the shares of a company.	Analysis of Financial aspects: Sales, Profitability, EPS etc. Analysis of Non-financial aspects: management, corporate image, product quality etc.

STRENGTHS OF FUNDAMENTAL ANALYSIS

- ✓ **Long-term Trends**

Fundamental analysis is good for long term investments based on long-term trends. The ability to identify and predict long-term economic, demographic, technological or consumer trends can benefit investors and helps in picking the right industry groups or companies.

- ✓ **Value Spotting**

Sound fundamental analysis will help identify companies that represent a good value. Some of the most legendary investors think for long-term and value. Fundamental analysis can help uncover the companies with valuable assets, a strong balance sheet, stable earnings, and staying power.

- ✓ **Business Acumen**

One of the most obvious, but less tangible rewards of fundamental analysis is the development of a thorough understanding of the business. After such painstaking research and analysis, an investor will be familiar with the key revenue and profit drivers behind a company. Earnings and earnings expectations can be potent drivers of equity prices. A good understanding can help investors avoid companies that are prone to shortfalls and identify those that continue to deliver.

- ✓ **Value Drivers**

In addition to understanding the business, fundamental analysis allows investors to develop an understanding of the key value drivers within the company. A stock's price is heavily influenced by the industry group. By studying these groups, investors can better position themselves to identify opportunities that are high-risk (tech), low-risk (utilities), growth oriented (computer), value driven (oil), non cyclical (consumer staples), cyclical (transportation) etc.

- ✓ **Knowing Who is Who**

Stocks move as a group. Knowing a company's business, investors can better categorize stocks within their relevant industry group that can make a huge difference in relative valuations.
The primary motive of buying a share is to sell it subsequently at a higher price. In many cases, dividends are also to be expected. Thus, dividends and price changes constitute the return from investing in shares. Consequently, an investor would be interested to know the dividend to be paid on the share in the future as also the future price of the share. These values can only be estimated and not predicted with certainty. These values are primarily determined by the performance of the company which in turn is influenced by the performance of the industry to which the company belongs and the general economic and socio-political scenario of the country.
An investor who would like to be rational and scientific in his investment activity has to evaluate a lot of information about the past performance and the expected future performance of companies, industries and the economy as a whole before taking investment decision. Each share is assumed to have an economic worth based on its present and future earning capacity. This is called its intrinsic value or fundamental value. The purpose of fundamental analysis is to evaluate the present and future earning capacity of a share based on the economy, industry and company fundamentals and thereby assess the intrinsic value of the share. The investor can then compare the intrinsic value of the share with the prevailing market price to arrive at an investment decision. If the market price of the share is lower than its intrinsic value, the investor would decide to buy the share as it is underpriced. The price of such a share is expected to move up in future to match with its intrinsic value.
On the contrary, when the market price of a share is higher than its intrinsic value, it is perceived to be overpriced. The market price of such a share is expected to come down in future and hence, the investor would decide to sell such a share. Fundamental analysis thus provides an analytical framework for rational investment decision-making. Fundamental analysis insists that no one should purchase or sell a share on the basis of tips and rumours. The fundamental approach calls upon the investor to make his buy or sell decision on the basis of a detailed analysis of the information about the company, the industry to which the company belongs, and the economy. This results in informed investing.
The fundamental analysis can be valuable, but it should be approached with caution. If you are reading research written by a sell-side analyst, it is important to be familiar with the analyst behind the report. We all have personal biases, and every analyst has some sort of bias. There is nothing wrong with this, and the research can still be of great value. Learn what the ratings mean and track the record of an analyst before jumping to a conclusion. Corporate statements and press

releases of a company offer good information, but they should be read with a healthy degree of scepticism to separate the facts from the spin. Press releases don't happen by accident; they are an important PR tool for companies. Investors should become skilled readers to weed out the important information and ignore the hype.

TECHNICAL ANALYSIS

Fundamental analysis and Technical analysis are the two main approaches to security analysis. Technical analysis is frequently used as a supplement to fundamental analysis rather than as a substitute to it. According to technical analysis, the price of stock depends on demand and supply in the market place. It has little correlation with the intrinsic value. All financial data and market information of a given stock is already reflected in its market price.
Technical analysts have developed tools and techniques to study past patterns and predict future price. Technical analysis is basically the study of the markets only. Technical analysts study the technical characteristics which may be expected at market turning points and their objective assessment. The previous turning points are studied with a view to develop some characteristics that would help in identification of major market tops and bottoms. Human reactions are, by and large consistent in similar though not identical reaction; with his various tools, the technician attempts to correctly catch changes in trend and take advantage of them.

Technical analysis is directed towards predicting the price of a security. The price at which a buyer and seller settle a deal is considered to be the one precise figure which synthesis, weighs and finally expresses all factors, rational and irrational, quantifiable and non-quantifiable and is the only figure that counts.

Thus, the technical analysis provides a simplified and comprehensive picture of what is happening to the price of a security. Like a shadow or reflection it shows the broad outline of the whole situation and it actually works in practice.

ASSUMPTIONS OF TECHNICAL ANALYSIS

- ✓ The market value of a security is solely determined by the interaction of demand and supply factors operating in the market.
- ✓ The demand and supply factors of a security are surrounded by numerous factors; these factors are both rational as well as irrational.
- ✓ The security prices move in trends or waves which can be both upward or downward depending upon the sentiments, psychology and emotions of operators or traders.
- ✓ The present trends are influenced by the past trends and the projection of future trends is possible by an analysis of past price trends.
- ✓ Except minor variations, stock prices tend to move in trends which continue to persist for an appreciable length of time.
- ✓ Changes in trends in stock prices are caused whenever there is a shift in the demand and supply factors.

- ✓ Shifts in demand and supply, no matter when and why they occur, can be detected through charts prepared specially to show market action.
- ✓ Some chart trends tend to repeat themselves. Patterns which are projected by charts record price movements and these patterns are used by technical analysis for making forecasts about the future patterns.

TOOLS AND TECHNIQUES OF TECHNICAL ANALYSIS

There are numerous tools and techniques for doing technical analysis. Basically this analysis is done from the following four important points of view:-

1) **Prices:** Whenever there is change in prices of securities, it is reflected in the changes in investor attitude and demand and supply of securities.
2) **Time:** The degree of movement in price is a function of time. The longer it takes for a reversal in trend, greater will be the price change that follows.
3) **Volume:** The intensity of price changes is reflected in the volume of transactions that accompany the change. If an increase in price is accompanied by a small change in transactions, it implies that the change is not strong enough.
4) **Width:** The quality of price change is measured by determining whether a change in trend spreads across most sectors and industries or is concentrated in few securities only. Study of the width of the market indicates the extent to which price changes have taken place in the market in accordance with a certain overall trends.

DOW THEORY

The Dow Theory, originally proposed by Charles Dow in 1900 is one of the oldest technical methods still widely followed. The basic principles of technical analysis originate from this theory.

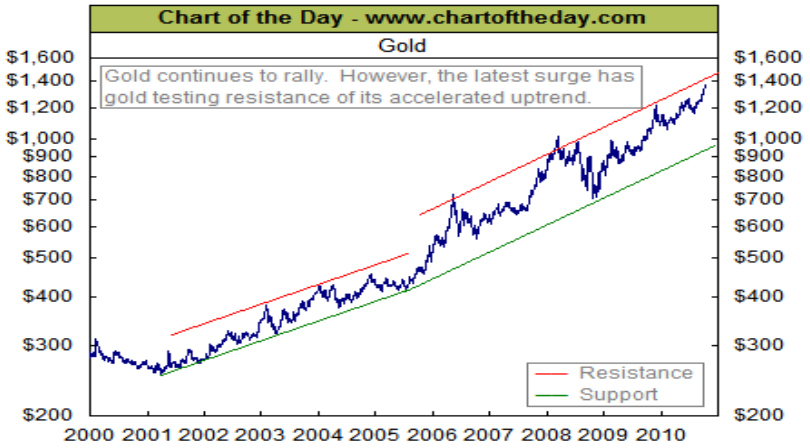
According to **Charles Dow "*The market is always considered as having three movements, all going at the same time. The first is the narrow movement from day to day. The second is the short swing, running from two weeks to a month or more and the third is the main movement, covering at least four years in its duration".***

The Theory advocates that stock behaviour is 90% psychological and 10% logical. It is the mood of the Crowd which determines the way in which prices move and the move can be gauged by analysing the price and volume of transactions.

The Dow Theory only describes the direction of market trends and does not attempt to forecast future movements or estimate either the duration or the size of such market trends. The theory uses the behaviour of the stock market as a barometer of business conditions rather than as a basis for forecasting stock prices themselves. It is assumed that most of the stocks follow the underlying market trend, most of the times.

A trend should be assumed to continue in effect until such time as its reversal has been definitely signalled. The end of a bull market is signalled when a secondary reaction of decline carries prices lower than the level recorded during the earlier reaction and the subsequent advance fails to carry prices above the top level of the preceding recovery. The end of a bear market is signalled when an intermediate recovery carries prices to a level higher than the one registered in the previous advance and the subsequent decline halts above the level recorded in the earlier reaction.

Table 1: Example of bull market trend.



The above figure shows that a bull market interrupted by reactions.

Table 2: Bear market trend.

The above figure shows that a bear market interrupted by recoveries.

CHARTING

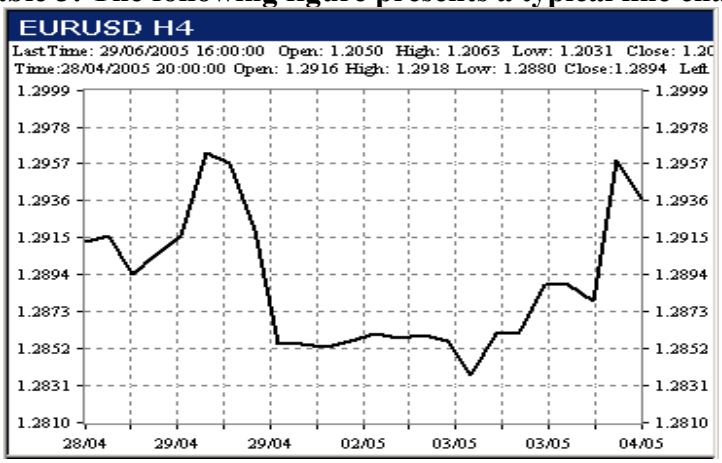
Charting is the basic tool in technical analysis, which provides visual assistance in defecting changing pattern of price behaviour. The technical analyst is sometimes called the Chartist because of importance of this tool. The Chartists believe that stock prices move in fairly persistent trends. There is an inbuilt inertia, the price movement continues along a certain path (up, down or sideways) until it meets an opposing force due to demand-supply changes. Chartists also believe that generally volume and trend go hand in hand. When a major 'up' trend begins, the volume of trading increases and also the price and vice-versa.

The essence of Chartism is the belief that share prices trace out patterns over time. These are a reflection of investor behaviour and it can be assumed that history tends to repeat itself in the stock market. A certain pattern of activity that in the past produced certain results is likely to give rise to the same outcome should it reappear in the future. The various types of commonly used charts are:

a) Line Chart
b) Bar Chart
c) Point and figure Chart

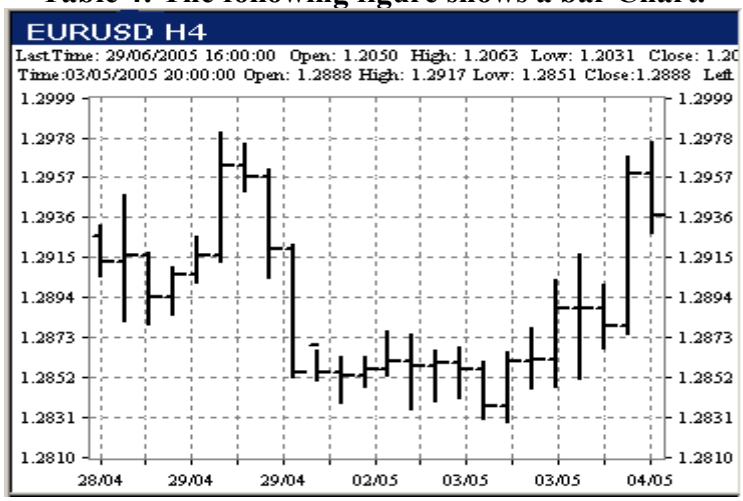
Line Charts: The simplest form of chart is a line chart. Line charts are simple graphs drawn by plotting the closing price of the stock on a given day and connecting the points thus plotted over a period of time. Line charts take no notice of the highs and lows of stock prices for each period.

Table 3: The following figure presents a typical line chart



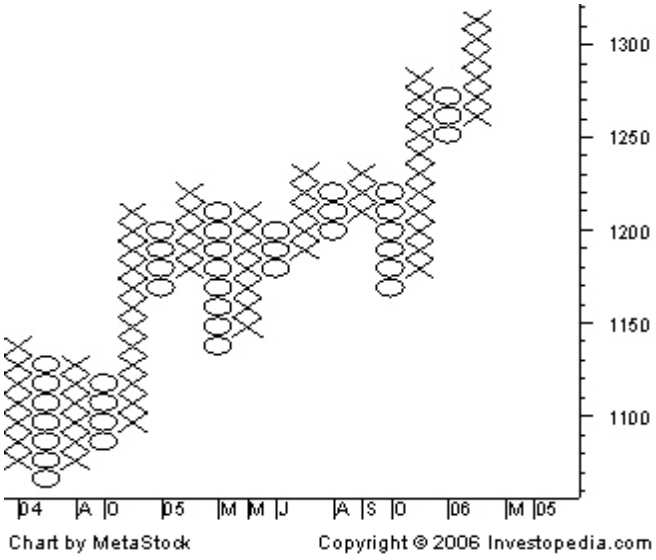
Bar Charts: It is a simple charting technique. In this chart, prices are indicated on the vertical axis and the time on horizontal axis. The market or price movement for a given session (usually a day) is represented on one line. The vertical part of the line shows the high and low prices at which the stock traded or the market moved. A short horizontal tick on the vertical line indicates the price or level at which the stock or market closed:

Table 4: The following figure shows a bar Chart.



Point and Figure Chart (PFC): Though the point and figure chart is not as commonly used as the other two charts, it differs from the others in concept and construction. In PFC there is no time scale and only price movements are plotted. As a share price rises, a vertical column of crosses is plotted. When it falls, a circle is plotted in the next column and this is continued downward while the price continues to fall. When it rises again, a new vertical line of crosses is plotted in the next column and so on. A point and figure chart that changes column on every price reversal is cumbersome and many show a reversal only for price changes of three units or more (a unit of plot may be a price change of say one rupee).

Table 5: The following figure shows a point and figure chart:



TRENDS

A trend can be defined as the direction in which the market is moving. Up trend is the upward movement and downtrend is the downward movement of stock prices or of the market as measured by an average or index over a period of time, usually longer than six months. Trend lines are lines that are drawn to identify such trends and extend them into the future. These lines typically connect the peaks of advances and bottoms of declines. Sometimes, an intermediate trend that extends horizontally is seen.

Table 6: Upward trend chart

Table 7: Downward trend chart

SIDEWAY TREND

A sideway trend is characterised by stock prices trading in a range where successive peaks occur at the same level and successive troughs occur at the same level. The two levels create parallel trend lines. During this time the investor should be extra careful and wait for more definite indicators of the future market movement.

Table 8: Sideway trend chart

Trend lines encompass advances and declines by joining successive tops and bottoms. Sometimes, it is useful to trap trends by drawing trend lines on both the sides of an upward or downward trend. These parallel lines drawn to encompass trends from both the sides are called channels.

MOVING AVERAGE ANALYSIS

The statistical method of moving averages is also used by technical analysts for forecasting the prices of shares. While trends in share prices can be studied for possible patterns, sometimes it may so happen that the prices appear to move rather haphazardly and be very volatile. Moving average analysis can help under such circumstances. A moving average is a smoothed presentation of underlying historical data. ***It is a summary measure of price movement which reduces the distortions to a minimum by evening out the fluctuations in share prices.*** The underlying trend in prices is clearly disclosed when moving averages are used.

To construct a moving average the time span of the average has to be determined. A 10 day moving average measures the average over the previous 10 trading days, a 20 day moving average measures the average values over the previous 20 days and so on. Regardless of the time period used, each day a new observation is included in the calculation and the oldest is dropped, so a constant number of points are always being averaged.

The moving averages are worked out in respect of securities studied and depicted on the graph. Whenever the moving average price line cuts the actual price line of the security or of the market index from the bottom it is a signal for the investors to sell the shares. Conversely, when the moving average price line cuts the actual price line from above, it is the right time to buy shares. The moving average analysis is quite a useful method in finding out the trends in security prices when it is based on long-term approach. However, a point of caution is in order. Moving average

analysis always invariably provide signal to buy or sell, after the trend reversal has begun. ***These are neither lead indicators nor juncture points for change in trends***. The moving averages should therefore, be used only with other indicators, otherwise these may provide true, but mathematically inaccurate information. The technical analysts can use three types of moving averages -simple, weighted or exponential.

RELATIVE STRENGTH

The empirical evidence shows that certain securities perform better than other securities in a given market environment and this behaviour remains constant over time. ***Relative strength is the technical name given to such securities by the technical analysts because these securities have stability and are able to withstand both depression and peak periods.*** Investors should invest in such securities, because these have constant strength in the market. The relative strength analysis may be applied to individual securities or to whole industries or portfolios consisting of stock and bonds. The relative strength can be calculated by:

i. Measuring the rate of return of securities
ii. Classifying securities
iii. Finding out the high average return of securities
iv. Using the technique of ratio analysis to find out the strength of an individual security.

Technical analysts measure relative strength as an indication for finding out the return of securities. They have observed that those securities displaying greatest relative strength in good markets (bull) also show the greatest weakness in bad markets (bear). These securities will rise and fall faster than the market.

Technical analysts explain relative strength as a relationship between risk and return of a security following the trends in the economy. After preparing charts from different securities over a length of time, the technician would select certain securities which showed relative strength to be the most promising investment opportunities.

RESISTANCE AND SUPPORT LEVELS

The peak price of the stock is called the resistance area. Resistance level is the price level to which the stock or market rises and then falls repeatedly. This occurs during an uptrend or a sideway trend. It is a price level to which the market advances repeatedly but cannot break through. At this level, selling increases which causes the price fall.

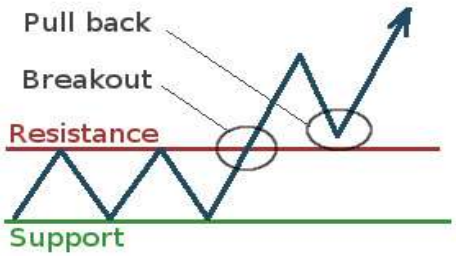
Support level shows the previous low price of the stock. It is a price level to which a stock or market price falls or bottom out repeatedly and then bounce up again. Demand for the stock increases as the price approaches a support level. The buying pressure or the demand supports the price of stock preventing it from going lower.

Table 9: Resistance & Support level trend chart

The figure shows that if the share price persistently fails to rise above a certain level, this is known as resistance level. This is perhaps because at this price people who purchased previously, but then saw the share prices fall, took the opportunity to sell at the price they previously paid. Likewise, a support level is a price at which buyers constantly seem to come forward to prevent the share prices dropping any further.
The support and resistance levels are important tools in confirming a reversal, in forecasting the course of prices, and in making appropriate price moves.

BREAK-OUT THEORY

Break out is also called as 'confirmation'. This is indicated by drawing a line, which is a period of consolidation, when the share prices move sideways within a range of about 5% of the share price. Eventually a break out will occur and it is often suggested that the longer the period of consolidation, the greater will be the extent of ultimate rise or fall.



Breakout is a signal for the investors who wish to buy or sell their stocks.

HEAD AND SHOULDERS PATTERN

The Head and Shoulders pattern is by far the most reliable and widely used of all reversal patterns. This pattern indicates a reversal of an uptrend. This pattern occurs at the end of a bull market and is characterised by two smaller advances flanking a higher advances just as the head lies in between two shoulders.

Table 10: A typical head and shoulder formation chart:

In reality, the shoulders are not always symmetrical. This does not in any way alter the signals provided by the pattern. The important requirement is that the shoulders should be at lower levels than the head. The left shoulder is seen during the time when there is a lull in the trading market followed by heavy purchases. The quiet time in trading called lull is such to raise the price by pushing to a new peak. The head faces with the time when there are heavy purchases in the market that it raises it and then it falls back to indicate that it is far below the top of the left shoulder. The right shoulder indicates that the price rises moderately by the activity in the market but it does not rise in such a manner that it reaches higher than the top of the head while it is reaching top, it begins to fall again and such a decline is indicated. The formation is easily discernible once the right shoulder is formed. The line that joins the points from where the final advance begins and ends is called the neckline. A trend reversal almost always occurs when the neckline is penetrated by the price line.

The head and shoulders pattern may be formed over short period of a few weeks or taken even years to emerge. This pattern is the most reliable indicator of the onset of a bear market. The method also provides scope for measuring the extent of fall in prices. The prices are expected to decline after the penetration of the neckline by the price line, at least as much as the distance between the head and the neckline.

DOUBLE TOP FORMATION

The double top occurs as an uptrend is about to reverse itself. A double top is formed when prices reach the previous high and react immediately, the two highs reached being almost at the same level. Two peaks at comparable heights are seen, with a reaction forming a valley between them. The prices breakout into a bearish phase, once they penetrate the neckline drawn across the bottom of the intervening reaction. The measuring implication is similar as for the head and shoulder formation. If the price line falls below the neckline by a distance equal to the distance between the peak and the trough the indication is to sell. Volume is found to be distinctly low at the second top.

Table 11: Double top formation chart

DOUBLE BOTTOM FORMATION

A double bottom pattern is just the reverse of a double top and occurs at the end of a downtrend in prices. In double bottom, the second decline is supported by substantially more volume, indicating the price about to rise. The following figure shows the double bottom formation: Sometimes, the tops and bottoms are not found exactly at equal levels, but still these provide valid reversal signals. Sometimes the patterns extend to triple tops or triple bottoms. It must be remembered that longer it takes for the second top (bottom) to appear and deeper the intervening valley (peak) more reliable will be the reversal.

CONCLUSION

Investment is a financial activity that involves risk. It is the commitment of funds for a return expected to be realised in the future. Investments may be made in financial assets or physical assets. In either case there is the possibility that the actual return may vary from the expected return. That possibility is the risk involved in the investment.

Risk and Return are the two most important characteristics of any investment. Safety and liquidity are also important for an investor. The objective of an investor is specified as maximisation of return and minimisation of risk.

Investment is generally distinguished from speculation in terms of three factors, namely risk, capital gains and time period. Gambling is the extreme form of speculation. Investors may be individuals or institutions. Both types of investors combine to make investment activity dynamic and profitable. The investors in the financial market have different attitudes towards risk and varying levels of risk bearing capacity. Some investors are risk averse, while some may have an affinity to risk. The risk bearing capacity of an investor, on the other hand, is a function of his income. A person with higher income is assumed to have a higher risk bearing capacity. Each investor tries to maximise his welfare by choosing the optimum combination of risk and return in accordance with his preference and capacity. It is highly essential for the investor to do both fundamental and technical analysis for deciding the suitable stock. In stock market, trend is considered to be a man's best friend.

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FUNDAMENTAL VERSUS TECHNICAL ANALYSIS OF INVESTMENT: CASE STUDY OF INVESTORS DECISION IN INDONESIA STOCK EXCHANGE

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Abstract

The focus of this research is to explain whether investors prefer technical or fundamental analysis to analyze their investment options and to analyze factors influencing the selection of that investment analysis method. The research uses questionnaire with 125 participants. Six independent variables used to explain the choice of investment analysis method, namely investor's education, investor's experience, information accessibility by the investor, investor's time the horizon, trading activity frequency, and investor's perception toward the disclosure done by the corporation. The result showed that Indonesian investors prefer technical analysis. The influencing factors that significantly the selection of analysis method are investor's experience and investor's time horizon.

Keywords: **Investor Demography; Investment Decision; Fundamental Analysis;**

Technical Analysis

INTRODUCTION

Nowadays, the modern and advanced economy has always characterized the rapid development of the activity in the capital market. Likewise, increasing awareness of the public to invest in the stock exchange because in the past people invest only in deposits. In making an investment decision, investors can analyze their investments by using two methods of analysis, namely fundamental analysis and technical analysis [1,2]. Fundamental analysis is the analysis of investment aimed at knowing the intrinsic value of shares in the company [3,4]. While technical analysis is an analytical tool that relies on market data that can be either graphics or other technical indicators, thus the technical analysis is also called charting [5].

Taylor and Allen [6] have conducted a survey of 353 dealers in the London exchange market. The results showed that the use of fundamental analysis and technical analysis are complementary. However, 90% of respondents in this study give more weight to the technical analysis. Similar to Taylor and Allen [6], Lui and Mole [7] conducted a study on investment analysis methods that are widely used by Hong Kong investors. Lui and Mole [7] conducted a survey of the exchange market dealers in Hong Kong and found that technical analysis is more attractive to use, especially for a shorter period.

Selection of the analytical methods used by investors associated with the Efficient Market Hypothesis and regarding Fama [8], an active market as a market that prices have reflected in all the relevant information. Relevant information is including past event, society, and personal information. Based on the absorption rate of the relevant information, Fama [8] divides the efficient market into three categories which include weak market, semi-strong market, and efficient markets.

In Indonesia, an efficient market mechanism research has been carried out. Sirait [9] conducted a study to examine the mechanism of the weak market in Indonesia. The results of this study indicate that the Indonesian stock market is inefficient and becomes efficient when done with a long-term research. Pontoh [3] also showed that the Indonesian stock market is not efficient, even including a weak stock market. Suryadimaja [10] tested the semi-strong form efficient market in Indonesia by using event study to analyze the effect of the announcement of the Initial Public Offering (IPO) and additional listing. Suryadimaja [10] showed that the information related to the announcement of the stock listing could not reflect in stock prices. In other words, the Indonesian stock market is not efficient or classified as the semi-strong stock market. The implication of this research is the investor can earn abnormal returns by using only historical data on the Indonesian stock market because the Indonesian stock market is not efficient [3]. Therefore, the use of technical analysis might be useful in Indonesia. The purposes of this study are:

1. To review and investigate whether the level of investor education influence the

selection model of investment analysis;
2. To examine and investigate whether the experience of investors influence the selection model of investment analysis;
3. To review and investigate whether the time horizon investor-owned affect the selection of models of investment analysis;
4. To review and investigate whether the trading frequency do investors influence the selection model of investment analysis;
5. To examine and investigate whether the accessibility of information investors influence the selection model of investment analysis;
6. To assess and investigate whether the level of investor perceptions affecting the composition of the investment analysis model.

Moreover, this study provides two main contributions were:

1. Purpose on aspects of science are expected to provide and add knowledge to the reader how the techniques or methods in stock investing and what factors are affecting it,
2. Purpose on aspects of the practitioner is methods of analysis in this study is still relatively rare, especially in Indonesia and this study contributes to investigating methods of analysis used by investors in investing.

LITERATURE REVIEW, CONCEPTUAL FRAMEWORK, AND HYPOTHESIS

Literature Review

Decision-making theory: According to Davis [11], the decision is the result of solving its problems. It relates to the answers to questions about "what to do" and the making of planning. In another word, the decision was the result of a thought process that the form of elections one among several alternatives that can use. There are five models of decision-making [12], namely: Model Rational, Rational Model Limited, Trash Cans Model (Garbage Can Model), Transcendent Model, and Model Intuitive.

Efficient market theory: An efficient market may indicate that stock prices fully reflect (fully reflect) the information available, it can be a company's annual report, the distribution of dividends, stock splits, stock market analysts' reports, and so on. Regarding Gumanti and Utami [13], Fama [8] presents three (3) types of primary types of market efficiency based on three kinds of information related to the selection method of analysis used by investors that past information, the information is now being published and information provided as follows:
(i) Weak market, (ii) semi-strong market, (iii) efficient markets.

Stock valuation techniques: In conducting stock transactions, every investor has a different analysis. Many references investment and financial analysis, divide stock investments, namely fundamental analysis, and technical analysis. Nevertheless, the fact that many investors and speculators are not familiar with this type of investment analysis because they only rely on information from the monitor screen, rumors, and

news in the media for making an investment decision.

Fundamental analysis is a method of forecasting movements of financial instruments in the future based on economic, political, environmental, and other relevant factors, as well as statistics that will affect the demand and supply of such financial instruments [14]. Meanwhile, according to Halim [15], fundamental analysis is an analysis that compares the intrinsic value of stock by its market price to determine whether the stock exchange prices already reflect the intrinsic value or not. According to Jogiyanto, the Fundamental analysis is the analysis using financial data, i.e. data derived from financial statements, such as earnings, dividends distributed and so on. Fundamental analysis is an analysis regarding the condition of the company. Meanwhile, according to Sutrisno [16] is a fundamental analysis of stock price analysis approach that focuses on the performance of businesses that issue shares and economic analysis which will affect the company's future.

Different from the fundamental analysis, technical analysis involves information relating to government policies, economic growth, the development of interest rates, the political conditions of a country, significant events, and others. A fundamental premise of technical analysis is the stock price reflects the relevant information, that information indicates changes in prices in the past, and hence the stock price changes will have a particular pattern, and that pattern will be repeated [17]. According to Ahmad [18], technical analysis is the analysis of the securities market or focusing on stock indices, prices or other market statistics to find patterns that might be predictive of a picture that has made. Briefly, technical analysis can be considered as securities analysis using historical price and volume charts [19].

Mechanism of Capital Market Transactions

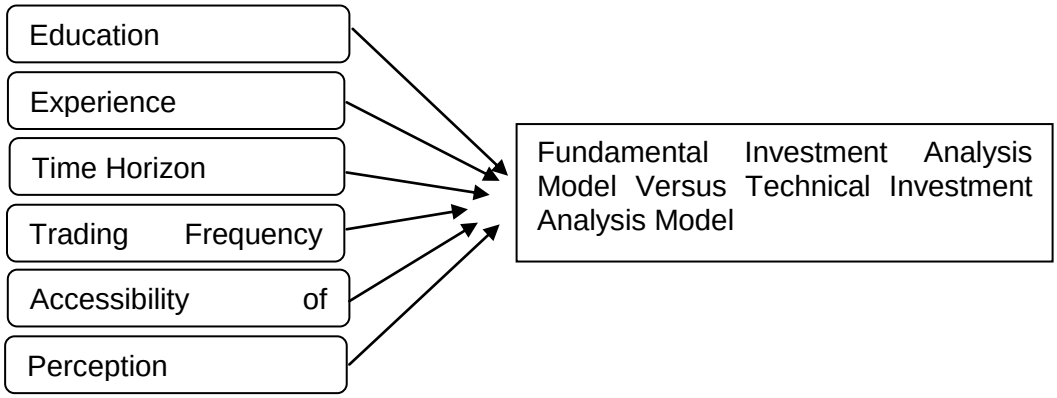
The securities trading activities do not differ from market activities involving buyers and sellers. In the capital market, the parties include referred to as issuers and investors. According to the Capital Market Law Article 1 number 6: "The term refers to the activities listed by the company that sells a broad range of shares to public investors through a public offering (the primary market). The shares have sold to the investors would be traded back among investors through the stock exchange (secondary market)".

According to Siamat [20] defines the prime market is the supply of securities directly by the issuer to the investor without going through the stock exchange. Marketing is the effects of the emissions trading securities. Prices of securities offered in the primary market do not fluctuate. After completion of the offer on the main market, these securities trade continuously and the prices will remain uncertain in the secondary market.

Conceptual Framework

The conceptual framework of this research can be seen in Figure 1.

Figure 1: Conceptual framework.



Hypothesis

Frensidy [21] stated that fundamental analysis is more complicated to do than technical analysis. Furthermore, it is possible that investor education and experience can influence the choice of investment analysis methods. Investors with a high level of education and expertise prefer to use fundamental analysis because fundamental analysis requires lots of understanding of economic and accounting circumstances. Only educated and experienced investors can process all the information needed in decision making. On the other hand, less educated and less experienced investors prefer the use of technical analysis because it is easy to implement. Investors do not need education and experience to process market data into decision makers since charts play a significant role. Therefore, the first and second hypotheses in this study are:
H1: The higher the investor's education, the higher probability of using fundamental analysis;
H2: The higher the experience the investor has the higher probability of using fundamental analysis.

Another factor influencing the choice of investment analysis method is the time range owned by investors and the frequency of trade [22]. Investors who trade in high frequency prefer to use technical analysis because technical analysis is easy to use and fast in decision making. On the other hand, investors with weak strategies prefer the use of fundamental analysis because the fundamental analysis is more comprehensive and takes much time in its use. So the third and fourth hypotheses in this study are:
H3: investor's time span influences the selection of investment analysis method;
H4: the trading frequency or trading activity owned by the investor has an effect on the choice of investment analysis method.

According to Lynch [23] states that investors should invest in what they know. Fundamentalists invest in companies that they know well. Thus, high levels of information accessibility required fundamentalists to complete their analysis. If access to information is limited, investors tend to use technical analysis that does not necessarily require company information. Investors simply collect past prices and the amount of

data, as well as their decision-making depends on the chart or table. So the fifth hypothesis in this study is:
H5: the accessibility of information owned by investors has an effect on the choice of investment analysis method.

Perceptions of the disclosure of financial statements have been mostly undertaken by listed companies also affect the selection of investment analysis methods. Fundamental analysis requires disclosure of financial statements that also require disclosure on the balance sheet. Fundamentalists should have a real perception of the disclosure of financial statements. If investors do not have a right opinion, investors tend to choose technical analysis, since technical analysis does not require knowledge and analysis on financial reporting. So the sixth hypothesis in this study is:
H6: investor's perception level has an effect on the choice of investment analysis method [24-26].

THE METHODOLOGY AND MODEL

The population approach in this study is the population of securities investors in Indonesia whose numbers uncertainty. Selection of sample in this research using approach proposed by Sugiyono that for the population that is not known with certainty (because of the amount of very many) can be taken responder as sample at least 100 respondents. Securities companies listed in Indonesia amount to 115 (one hundred and fifteen) companies. In this study, the population takes only 5 (five) securities companies located in Jakarta. The company is the longest securities company in managing the investment, the investors have more than five years' experience, have more than 1 billion investment, have been trading online, and already have permission as broker-dealer (Broker Dealer) Finance Services Authorities (OJK).

In this study used a sample of 125 respondents who became investors in some securities companies. The selection of securities firms as many as five companies from 115 listed companies do randomly. The sample used in this study is cluster random sampling, where each group of investors from securities firms randomly selected with the amount of each of 25 (twenty-five) respondents in securities companies that became the object of this study. Samples were taken as many as 25 respondents because the questionnaire was given randomly to investors who are under the auspices of securities companies who are willing to fill out the survey so that the total samples studied complete (amounted to 125 respondents).

Component questions to understand and know the rankings in the use of fundamental analysis are: macroeconomic analysis, Gross Domestic Product (GDP) analysis, business cycle analysis, yield curve analysis, inflation rate analysis, industry analysis, technical cycle analysis, investment rotation, other company disclosure analysis, and financial ratio analysis. Each of the above components is measured using a Likert scale with an unbalanced rating scale. While the other question components employed in the use of technical analysis are: historical price review, historical volume review, chart usage, use of sentiment indicator, use of put/call ratio, and moving average usage.

Each of the above components is measured using a Likert scale with an unbalanced rating scale.

Investor education will measure in two components, namely formal education and informal education. Formal education is a degree completed by investors in formal education. Moreover, informal learning is the participation of investors in various training, workshops, seminars, and talk shows with investment theme. This variable will be measured using an ordinal scale. The investor experience will measure by asking how long the investor has experienced in investing in the capital market. This variable will be measured using an ordinal scale. Investor accessibility to information will measure in two components, namely the availability of information relating to financial statements and accessibility of information unrelated to the financial statements. This variable will measure by using the ordinal scale. The time span is how long the investor holds the company's shares. This variable will be measured using an ordinal scale. The investor's trading frequency measures the number of transactions done by the investor per day. This variable is measured using an ordinal scale. Investor perception is the disclosure will be measured in five components, namely: perceptions of disclosure of the balance sheet, Income Statement, Cash Flow, Other Financial Disclosures, and Other Non-Financial Disclosures. This variable will measure on an ordinal scale.

All the above data were analyzed using descriptive statistics and inferential statistics. Descriptive statistical information in this study is used to determine the characteristics of Indonesian investors and to find out what Indonesian investors select analytical methods, whether fundamental analysis or technical analysis. The variables measured using the Likert scale consisting of the use of fundamental analysis, the use of technical analysis, accessibility of information, and perception were tested to determine the level of its validity and reliability. Validity test in this research is correlation and reliability analysis in this study using Cronbach's alpha. All variables consisting of two or more components will be tested for by using factor analysis, i.e., accessibility information, perception, fundamental analysis, and technical analysis. Factor analysis is used to form sizes for concepts consisting of more than one component. Furthermore, to analyze the influence of independent variable to the dependent variable, this research will use logistic regression with the formula:

$$FUND=\beta_0+\beta_1EDU+\beta_2EXP+\beta_3ACS+\beta_4TIM+\beta_5FRQ+\beta_6PCP$$

Where:
FUND: The variable that shows the comparison between using the level of fundamental analysis and technical analysis
EDU: Investor Education
EXP: Experience investor
ACS: Accessibility of investor information
TIM: Time horizon investor
FRQ: The frequency of investor trading
PCP: Perceptions of investors.

The dependent variable is FUND which shows the comparison between fundamental analysis and technical analysis. FUND will be worth 1 (one) if the analysis result using fundamental analysis and frequency of use of fundamental analysis is bigger than with result of technical analysis and frequency of usage of technical analysis. So is the opposite condition. While the independent variables are:
EDU=investor education;
EXP=investor experience;
TIM=investor time span;
FRQ=investor trading frequency;
ACS=accessibility of investor information;
PCP=investor perception.

Findings

This study uses 125 respondents consisting of investment managers and individual investors who domiciled in Jakarta. Some respondents are individual investors, 90 (ninety) respondents or 72% and the rest of the respondents are investment managers of 35 (thirty-five) respondents or 28%. The investment analysis method favored by Indonesian investors is described in Table 1.

Table 1: Investor's choice analysis method.

Analysis Method	Amount	Percentage
Fundamental	61	48,8%
Technical	64	51,2%
Total	125	100%

Indonesian investors prefer technical analysis compared with fundamental analysis which shown in Table 1 above that the comparison between the use of fundamental analysis and technical analysis is not much different. Although they also use both methods of analysis, most prefer using technical analysis. This result is similar to previous research conducted by Taylor and Allen [6] and Lui and Mole [7]. The difference lies in the characteristics of the research undertaken. Taylor and Allen [6] and Lui and Mole [7] conducted a study on the foreign exchange market where price patterns were easier to determine than in the stock exchange, and technical analysis was more frequently in the foreign exchange market than in the stock exchange.

Tables 2 and 3 illustrate the question components in fundamental analysis and technical analysis used by Indonesian investors. In FUND, the analysis often used by investors is industry analysis because industry report is one part of fundamental analysis. The technical analysis usually performed after conducting an economic analysis. In industry analysis, investors try to compare the performance of various industries to be able to know what kind of industry that gives the most promising prospect or vice versa. After analyzing the industry, investors will then be able to use the information as input to consider the shares of which industry groups will include in the existing portfolio. The rarest analysis used by Indonesian investors is the business cycle because the

business cycle has not been able to describe the macroeconomic indicators. At TECH, on the technical component (TECH), more investors use the chart that due to the natural use of this type of analysis. In today's technological developments, it is very easy to get past price data and chart or stock price movements to analyze it. The most rarely used analysis is the average of the stock movement because Indonesian investors are less in the average use of stock price movements.

Table 2: Fundamental analysis used by ınvestor Indonesia.

Description	Strongly Disagree	Disagree	Agree	Strongly agree
FUNDAME NEAL (FEN-10)				
Macroeconomic analysis	6(4,3%)	36(23,2%)	49(39,2%)	34(27,2%)
Analysis of Gross Domestic Product (GDR)	1(0,8%)	37(29,6%)	50(40,0%)	37 (29,6%)
Business cycle analysis	1(0,3%)	31(24,8%)	71 (56,8%)	22 (17,6%)
Yield Curve Analysis	5(4,0%)	27(21,6%)	64 (51,2%)	29 (23,2%)
Inflation Rate Analysis	3(,4%)	28(22,4%)	67(53,6%)	27 (21,6%)
Industrial Analysis	2(1,6%)	39(31,2%)	46 (36,8%)	33 (306%)
Industrial Cycle Analysis	8(6,4%)	29(23,2%)	56(44,8%)	32(25,6%)
Investment Rotation	8(6,4%)	27(21,6%)	56 (44,34)	34 (27,2%)
Analysis of financial statement	8(6,4%)	25(20,0%)	64(51,2%)	28 (22,4%)
Analysis Disclosure analysis of other companies	6 (4,8%)	22(17,6%)	72 (57,6%)	25 (20,0%)
Financial ratio analysis	6(4,8%)	18(14,4%)	68(54,4%)	33(26,4%)

Table 3: Technical analysis used by investor Indonesia.

Description	Strongly Disagree	Disagree	Agree	Strongly Agree
TECHNICAL (TECH)				
Review of historical prices	4 (3,2%)	27 (21,6%)	61(43,3%)	33 (26,4%)
Review historical Volumes	6 (4,3%)	14 (11,2%)	73 (53,4%)	32 (25,6%)
Use of Charts	6 (4,8%)	21(16,3%)	61(43,3%)	37 (29,614)

Use of sentiment indicators	3 (2,4%)	37 (29,6%)	49 (39,2%)	36 (28,3%)
Use of put/call ration	4 (3,2%)	41(32,3%)	46 (36")	34 (27,2%)
Use of moving average	3 (2,4%)	49 (39,74)	43 (34,4%)	30 (24,0%)

In Table 4 below investors are more likely to use market news access that is not related to the subject of financial statements because the use of financial statements will be more useful if reported not only quantitative aspects, but includes other explanations that are deemed necessary, and this information should factual and objectively measurable.

Table 4: Accessibility information investors Indonesia.

Description	**Strongly Disagree**	**Disagree Agree**	**Agree**	**Strongly Agree**
Accessibility Information (ACS)				
Access market news related to the subject of financial statements	2 (1,6%)	35 (23,0%)	57 (45,6%)	31 (24,8%)
Access market news that is not related to the subject of financial statements	4 (3,2%)	31(24,3%)	55 (44,0%)	35 (28,0%)

In Table 5 below describes the statistical analysis method chosen by the investor regarding disclosure of perception. In the judgment expressed (PCP), the overall investor Indonesia stated that the use of the income statement (Income Statement) might indicate revenue from the sale of a variety of costs, and the profit earned by the company during a particular period. The PCP assist investors and other capital market participants in identifying circumstances of a company while investor perception on small balance.

Table 5: Disclosure ınvestor perception Indonesia.

Description	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
Published Perception (PCP)				
Perception on balance sheet disclosure (balance sheet)	7 (5,6%)	36 (28,8V)	54 (43,2%)	28 (22,4V)
Income statement	5 (4,0°A)	39 (31,2%)	42 (33,6%)	39 (31,2%)
Cash flow	6 (4,8%)	43 (34,4%)	42 (33,6%)	34 (27,2%)
Other financial disclosures	7 (5,6%)	29 (23,2%)	59 (47,2%)	30 (24,0%)
Other non-financial disclosures	13 (10,4%)	30 (24,0%)	49 (39,2%)	33 (26,4%)

Table 6: Characteristics of Respondents by Education.

No.	Variable	Education Level	Total	%
1	Education (EDU)	High School	10	3,0%
		Bachelor	88	70,4%
		≥Post Graduate	27	21,6%
		Jumlah	125	100%
		Non Formal:		
		0-2 tirnes	44	35,2%
		3-5 times	30	24,0%
		> 5 times	51	40, a m,
		Total	125	100%

In Table 6 above, most investors who are in the majority of the securities company is investor education S1. While the level of non-formal education, the majority of respondents have attended various training, seminars, and even talk about an investment of more than five times.

Table 7: Characteristics of respondents based on experience.

No.	Variable	Experience Level	Total	%
2	Experienced (EXP)	<l year	30	24,0%
		1-2 Year	18	14,4%
		3-5 Year	33	26,4%
		> 5 year	44	35,74
		Total	125	100%

The level of experience of the majority of investors is over 3-5 years so that it that most of the respondents or investor in this study is quite experienced in investing that can reflect in Table 7.

Table 8: Characteristics of respondents based on time range ımplement ınvestment.

No.	Variable	Level	Total	%
3	Time Span (TIM)	<1 year	56	44,8%
		1-2 year	15	12,0%
		3-5 year	36	28,8%
		> 5 year	18	14,4%
		Total	125	100%

In Table 8 above, the characteristics of respondents based on the time span of this study the majority is less than 1 (one) year, which means 44.8% of Indonesian investors to invest only for a short period (short term) and they also are takers term profits short.
At FRQ, Indonesian investors trading frequency too high, i.e., 16-20 times per day.

Investor Daily on securities firms with high-frequency trading prefers the use of technical analysis because technical analysis is more easily applied and faster decision making that shown in Table 9.

Table 9: Characteristics of respondents based on frequency trading.

No.	Variable	Number of Frequencies	Total	%
4	Trading Frequency per day (FRQ)	< 10 times	39	31,2%
		10-15 times	27	21,6%
		16-20 times	57	45,6%
		> 20 times	2	1,6%
		Total	125	100%

Measurements on the selection of investment decision analysis method use a dummy variable. The fund is given a number or code one because of the use of fundamental analysis is much more challenging when compared to the technical analysis (Tek) so as to Tek given number or code 0. Therefore, the FUND will be worth one if the product of a factor analysis of the use of fundamental analysis and use of frequencies fundamental analysis is greater than the factor analysis products use technical analysis and technical analysis of the frequency of use. FUND will be 0 if the product of a factor analysis of the use of fundamental analysis and fundamental analysis of the frequency of use is smaller than the factor analysis products use technical analysis and technical analysis of the frequency of use. In other words, the value one will award if more investors opt fundamental analysis, and a value of 0 will give if more investors are choosing technical analysis. So the logistics analysis is consistent with research that due to the difficulty level of the use of methods of analysis for investors in Indonesia in making investment decisions.

Results of the election method investor analysis using logistic regression can be seen in Table 10.

Table 10: Logistic Regression Results.

$Fund=\beta_0+\beta_1EDU+\beta_2EXP+\beta_3ACS+\beta_4TIM+\beta_5FRQ+\beta_6PCP$				
Variable Dependent: Fund				
Variable Independent	**Hypothesis**	**Exp(B)**	**β**	**Sig.**
Constant		0,021	-3,885	0,013**
EDU	-	0,934	0,069	0,880
EXP	+	1,831	0,605	0,029**
TIM	+	2,847	1,046	0,003***
FRQ	+	0,713	0,339	0,291

ACS	-	1,199	0,181	0,368
PCP	-	0,995	0,005	0,966
Chi-Square	11,350			
Cox and Snell R Square	0,342			
Nagelkerke R Square	0,456			

Description: ***Significant at 1%; **Significant at 5%

Based on Table 10 above it can be given the following equation=
Fund=-3.885 - 0,069EDU+0,605EXP+1,046TIM - 0,339FRQ+0,181ACS - 0,005PCP.

Before performing the analysis on each independent variable coefficients, the feasibility of formula should be tested. The determine using the Hosmer and Lemeshow test output. More significance level of 0.05 means that no significant difference between the Fund predicted by the Fund under investigation. There are two (2) ways to determine the R-Square to the Logistic Regression namely Cox and Snell and Nagelkerke R Square. At Cox and Snell R Square on this model is 0.342 or 34.2%. That means 34.2% on the dependent variable, which the Fund may be affected simultaneously by six (6) independent variables. However, at Nagelkerke R Square, figures obtained higher at 0.456 or 45.6%, where the dependent variable simultaneously can not be affected by the six (6) independent variables but 54.4% which can influence other variables that are not independent included in this study. The difference between the Cox and Snell and Nagelkerke R Square is Nagelkerke R Square has a higher degree of sensitivity than Cox and Snell. By analyzing the variables in the equation table, concluded that among the six (6) independent variables used in this study, only 2 (two) variables that significantly affect the selection of investment analysis methods. The second significant variable was the experience (EXP), and a span (TIM).

Investor Education

Hypotheses used to test the significant level of investor education are:
H1: investor-owned educational influence on the selection of investment analysis methods.
From the data variables contained in equation table, it can see the level of significance in the Communities is more than 0.05 is equal to 0,880, and it means that the variable EDU did not influence the selection of investment analysis methods. So the first hypothesis in this study was rejected. The significant lack Communities variables can cause two (things) both of which are components of the Communities themselves, namely formal education and non-formal education of investors. Formal education may be a factor that causes Communities not significant. Because maybe formal education is not associated with the investment. So the investor educational background did not learn anything about the methods of investment analysis. Although formal education is a relatively high investor because education is not related to finance and investment, then this gives little influence on the selection methods of investment analysis. Non-formal education can also cause Communities become insignificant. Because there is a possibility that the event follows an investor has an investment theme but not directly

related to investment analysis methods. Then there is no added value to knowledge held by investors associated with fundamental and technical analysis methods. Therefore, although the non-formal education is relatively high investors, it has no effect or little effect on the selection of investment analysis methods.

Investor Experience

Hypotheses used to test the significant level of the experience of investors are:
H2: experience of investor influence on the selection of investment analysis methods.
From the data variables contained in equation table, a regression coefficient of EXP of 0.934, indicating that any increase in EXP may also cause an increase in the Fund. So this can be seen from the significant level of 0.029 EXP where the rate is less than 0.05, which is a significant level used in this study and it means that the second hypothesis in this study received. The higher level of experience possessed by the investor, the higher the use of fundamental analysis. So the more or higher level of experience, investors are becoming more aware of and understand the ins and outs of investing in securities firms.

Time Span Investors

Hypotheses used to test the significant level in the period the investor is:
H3: investor-owned span of influence on the selection of investment analysis methods.
From the data variables contained in equation table, the regression coefficient of TIM amounted to 2,847, and the figures show that every increase in the TIM may also cause an increase in the Fund. So this can be seen from the significant value gained 0.002 which is the standard of 0.05 which used in this study that means The TIM variable effect on the election method investment analysis. Then the third hypothesis in this study received. The longer span of time has the higher use of fundamental analysis.

Frequency Trading Investors

Hypotheses used to test the significant level of investor trading frequency are:
H4: frequency trading or trading activity of investors who owned an effect on the selection of investment analysis methods.
From the data variables contained in equation table, the regression coefficient of FRQ is equal to 0.713, and significant FRQ value of 0.291 and this figure shows more than 0.05 which is a significant level used in this study, its mean indicates that the FRQ variable no significant effect on the selection of investment analysis methods. The fourth hypothesis in this study is not acceptable.

Investor Information Accessibility

Hypotheses used to test the significant level of the accessibility of information investors are:

H5: the accessibility of information held by the investor influence on the selection of investment analysis methods.
From the data variables contained in equation table explaining that the value of ACS amounted to 0.368 which is greater than 0.05, which is a significant reference value used in this study and it means that the value of ACS does not influence the selection of investment analysis methods. The fifth hypothesis in this study, not acceptable which may result from the normative approach in answering the questionnaire. Most investors said the information in the information exchanges accessible by all means of information. The answer does not generate significant value for the ACS variable selection methods on investment analysis. Other possibilities for ACS components question is general information and not specific therefore the investors tend to answer normative.

Disclosure Investor Perception

Hypotheses used to test the significance level of the perception of investors is:
H6: owned investor perception level affects the election method investment analysis.
From the data variables contained in equation table, the regression coefficient of PCP is more than 0.05 is equal to 0.966, which is the level used in this study that shows the perception variables did not influence the selection of investment analysis methods. The sixth hypothesis in this study was rejected, and its mean caused by the investor-owned normative approach in answering the questionnaire. The majority of investors said that the accuracy of the data companies that go public has been excellent because they believe in the management of professionals in each of these companies. The other reason investors depend on the possibility of SFAS (Statement of Financial Accounting Standards) which serve as guidelines for companies to present the data in the financial statements accurately. Investors believe that every publicly traded company has met its obligations to submit the data with GAAP. There is another possibility that investors believe the auditors provide an opinion on the company's financial statements. Investors believe that the auditor has provided a complete evaluation for the accuracy of financial statements. Therefore, investors are confident that the truth of the financial statements can use as a benchmark on investment decisions. The third reason may lead to an insignificant influence on investors' perception of the correctness of the data the company that made the selection of investment analysis.

CONCLUSION AND RECOMMENDATION

Conclusion

According to the analysis done can be seen that the method of analysis of investment chosen by the investor in Indonesia is a method of technical analysis. The factors that significantly affect the selection of investment analysis methods is the experience of the investor and the investor time span. Results from the other four factors tested in this study did not significantly influence the selection of investment analysis method, namely the level of investor education, trading frequency, accessibility of information, and investor perceptions. The conclusion of this research are as follows:

1. Education investor does not significantly influence the selection of investment analysis methods.
2. Experience investor can significantly affect the electoral method investment analysis.
3. The timeframe investors significantly influence the selection of investment analysis methods.
4. The frequency of trading investors does not significantly influence the selection of investment analysis methods.
5. Accessibility of information does not significantly influence the selection of investment analysis methods.
6. Perception does not significantly influence the selection of investment analysis methods.

Recommendation

From the research results and conclusions as mentioned before, a few suggestions that can convey the author are:

Experience: In this study stated that the experience significantly influences the selection of investment analysis methods. Thus the investors who do not have sufficient experience should not be discouraged to keep investing in the stock market.

Time range: In this study, investors tend to invest in a span of <1 year, so investors are more frequently taking advantage of relatively rapid. However, it also should be considered by investors not to rush into the decision to prevent the amount of the loss.

Perception: Other financial disclosure would burden small companies when issuing the report that emphasized for companies listed on a stock exchange or a company that has a value of certain assets and by defined criteria. Furthermore, it can help the public to know would be a good prospect to be obtained by the company in the future and can assist investors in making right investment decisions.

Education: This study found that education does not significantly influence the selection of investment analysis methods. So it should hold a securities company or work with the school or university to socialize or share knowledge about securities, the method of analysis, types of investment instruments, and so on so that they can understand it well. Also, for the investor should still seek knowledge and knowledge regarding the selection of their investment analysis methods to obtain good investment decisions and profitable.

Accessibility information: The increase in trading occurs because investors have different interpretations of an announcement on the market news that is not related to the subject of financial statements. The increase in the volume of trade will be higher with higher uncertainty among investors regarding their interpretation of the announcement. However, the trade does not automatically imply a difference in interpretation between the investors, the increase in the volume of trade can still occur if investors have different information. Then the securities company should always

provide accessibility of information in the form of financial statements and nonfinancial reports easy, understandable, and can help investors in making investment decisions.

Frequency trading: The activities of high-frequency trading caused by some investors and the amount of interest to transact buy and sell shares. Investors with little trading frequency do not worry because the character of each investor is different according to the degree of risk-taking that they take. Securities firms also should always provide a sense of trust and foster a sense of safety to investors to keep trading buy and sell shares.

FURTHER RESEARCH

The subsequent researchers suggested could do similar research but should add another variable to be able to do further research due to the figures obtained by the model Nagelkerke R Square of 45.6%. The dependent variable simultaneously can not be affected by the six (6) independent variables, but 54, 4% of which can be influenced by other independent variables that are not included in this study.

Examples of variables that can be added, namely: transaction volume or the nominal amount per transaction. Because, according to research conducted by the Bodie [21], the investor who uses technical analysis focuses on stock returns. Thus it can be understood that the number of transactions they will use less than the investor who uses fundamental analysis.

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3. https://www.youtube.com/watch?v=m3kBczlC84c
4. https://www.youtube.com/watch?v=GdzeaE0Qwwc
5. https://www.youtube.com/watch?v=iJSuQolozN4
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