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Research Article

A Study on Portfolio Construction using Sharpe Single Index Model

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ABSTRACT

Making wise decisions is essential to getting good returns on investments. These choices assist investors in deciding whether to invest at all and which stocks to include in their intended balanced investing strategy. Investors may use the Sharpe Index Model to build an ideal portfolio if they believe that stock volatility and market volatility are almost the same. Toolslike Standard Deviation (S.D.), Variance (S.D.²), Beta-volatility, and Cut-off-Rate (ci) are used in the analysis. A number of variables, including beta, excess returns in relation to beta, unsystematic risk, and the cut-off point, are taken into account when determining the percentage of investment for each chosen securities. With less risk, investors can achievehigher profits thanks to this analysis.

Keywords: Investment,Risk,Return,Sharpe'sIndexModel,OptimalPortfolio

1. Introduction:

Investors typically look for a balance between high earnings and low risk when buying equities. The return component of a company's shares was the primary concentration of stock analysts in the past, but risk has recently received growing attention.

When investing, making the correct decision is crucial to achieving positive outcomes. These choices helps investors in determining which stocks to include in their selected portfolio investing strategy or whether to make any investments at all. Reducing risk and increasing profits are the goals of every investor.

In the past, investors aimed to focus and accomplish their objective through capital growth and returns."Modern Portfolio Theory," a more recent approach created by Markowitz, provided a framework for calculating the impact of risk on asset performance as a selection criterion.

Astockmarket'smainobjectivesaretogiveinvestorsliquidity,helpbusinessesraisemoney,andcreatea transparent, regulated environment for securities trading.

The establishment of the Bombay Stock Exchange (BSE), Asia's oldest stock exchange, in 1875 added to the lengthy history of the Indian stock market. The 1992 establishment of the National Stock Exchange (NSE) gave the Indian stock market computerized trading, more accessibility, and greater transparency.

Important international stock exchanges include the New York Stock Exchange (NYSE), the LondonStockExchange(LSE),theNewYorkStockExchange(NASDAQ),andtheNSEandBSEinIndia.Theinfrastructure for trading, clearing, and settlement is provided by exchanges.

Regulators: To guarantee that stock markets operate effectively, openly, and fairly, regulatory agencies like the Securities and Exchange Commission (SEC) in the US and the Securities and Exchange Board of India (SEBI) in India are in place.

Theyupholdregulations,keepaneyeontradeactivity,andprotecttheinterestsofinvestors

Markowitz received the Nobel Prize for his contributions and was referred to as the "Father of Modern Portfolio Theory". Markowitz ,H m (1952) in the Journal of finance , provided insights on portfolio selection .A component of Markowitz's approach is identifying relationships between the volatility and return rate of particular stocks.Butbecauseofthedifficultyofstockanalysis, WilliamSharpecreatedthe "SharpeSingleIndexModel."This methodology simplified data calculations by linking changes in individual stocks to the behavior of market indexes. As a result, Sharpe's strategy was widely acknowledged as a reliable investment methodology.

It is a framework designed to help investors understand the risk associated with the return on their investments. The market stock rate, its risk, and the gains over risk are all combined in it.

While return is the amount of money an investor makes from their investments, risk is the chance that actual outcomes will differ from expected returns.

Theriskcategorieslistedareasfollows:

Systematic Risk: This type of risk is associated with factors that affect the market as a whole, such as inflationandmarketfluctuations.UnsystematicRisk: This kindofriskisuniquetoeverycompanyandresultsfrom factors that are exclusive to that company.

In conclusion, building an asset portfolio requires carefully weighing the possible risks and benefits in order to increase profits while lowering the diverse hazards connected to various market securities.

FACTORSINFLUENCINGTHESTOCKMARKET

Economic indicators: GDP,employmenttrends,Interestandinflationrateshavea significantimpacton stock prices. Rapid GDP growth can indicate a strong economy, leading to higher stock prices.

Corporate'svalidity:incomereports,managementguides,merger,acquisitions,and shares,businessactions, such as changes in stock prices, may affect .

Globalevents:politicalinstability,wars,pandemicsandcommercialwarscanleadtomarketvolatility.For example, the Pandemic COVID has resulted in significant dysfunctions on the world market.

InvestorSentiment:Marketsentiment,drivenbyinvestorpsychology,cancausestockpricesto fluctuate. Bullish sentiment causes prices to rise, while bearish sentiment can cause prices to fall.

Government policies: Regulation,monetarypolicyand fiscal policies implemented by governments and central banks can have a significant impact on the stock market.

For example, changes in interest rates made by the Reserve Bank of India (RBI) canaffectbondprices and market conditions.

IntroductiontoSharpeSingleIndexModel(SIM):

A process designed to increaseunderstanding and provide information for building investment portfolios. TheNSE Nifty, the main index of NSE India, is used as a benchmark for market analysis. The daily closing prices of large-, mid-,and small-capNifty firms are examined fromJune2019to May 2023 inorderto compare themwiththe daily closing prices of specific securities. In order to create an efficient portfolio, the suggested computations entail establishing a particular limit ratio for stock selection. The return-to-beta ratio of the chosen securities must be greater than the cap rate. Each selected security's beta value, excess return in relation to beta, unsystematic risk, and cap rate are taken into consideration while allocating investments.

Thestepsinvolvedinbuildinganoptimal-portfoliousingaSIMareasfollows:

Step1:Determinethereturnsforasinglesecuritymonthovermonth.

Step2:Calculatethesecurity'sestimatedreturnandvariousrisks.

Step3:Determinetherisk,returnoftheconfidentstocksandrankthem.

Step4: Usetheratingmentionedabovetocreatea portfolio.

Step5: Todeterminethecutoffpointforchoosingthebeststocks.

Step6: Giveeachidenticalsecuritytheinvestmentratio.

By comparing the pairings to a common market performance index, the SIM suggests a more straightforward method of analyzing the relationship between movement among the pairs. Compared to Markowitz's model, this method has become more common and simplifies the input requirements.

The SIM relies on several assumptions, including the idea that all investors share similar expectations, that holding periods and yields play a role, and that market volatility influences asset prices. It assumes a relationship between the returns on securities and other factors.

The SIM is based on a number of assumptions, such that all investors have the same expectations, that holding durations are important, and that market fluctuations affect prices. These assumptions serve as the basis for the random fluctuation terms.

Thereturnofasecurityisanoutputoftheparts:

Uniquepart:Representedby'Alpha,'itsignifiesmicro-leveleventstriggersanindividualsecurityonly.

Market-relatedaspect:Denotedas'Beta,'it quantifies howasecurity'sreturnrespondstofluctuationsinthe overall market, reflecting its level of risk within a diversified portfolio.

Dependingonitsvalue,theRiskProfileLine(SIMLine)givesinformationaboutthecharacteristicsofthesecurity.

Often,securities with a highbetato 1are consideredaggressive, as they perform well inbull markets and poorly in bear markets.

Stockswith a betabelow 1 are considereddefensive, as they reduce the overall market's returns. Since their returns vary in line with the market\'s volatility, securities with a beta of one are regarded as neutral**.**

OneofthepitfallsofSIMisthatitfocusesonlyononepointandthereforecannottake intoaccountuncertainties thatariseovertime.Also, the model ignores factors specific to a particular industry that mayaffectthemovementofasecurityand islimitedbytheassumptionthatprices move inunisononlydue togeneral market changes. Empirical researchshowsthat more complex models do not always outperform SIM in predicting expected covariances between security returns**.**

2. LiteratureReview:

1. Sarvamangala KJ,GSudarsanaReddy (June-2022),IRJEdTVolume:04 Issue:06,BuildingtheBestPortfolio withSIM Model: Building a portfolio is a crucial step in the equity market investing process. A well-chosen portfolio will yield the highest return forthe degree of risk.
2. Ashwini R, Dr.G.Sudarsana Reddy, (July 2022), Using SSI Model to create the ideal portfolio: A securities portfoliomayincludeavarietyoffinancialinstruments.Thecombinationcouldbemoneymarketinstruments, preference stock, debit securities/bonds, or equity stock. A well-balanced securities portfolio will offer themost return at the lowest risk. The study's objective is to use Sharpe's approach to create the best possible portfolio utilizing 15 equities that are listed on the Bombay Stock Exchange (BSE). International Journal of Publications and Reviews in Research.
3. Ujjwala Chitre, Dr. Yogesh Puri Scholar, (July 2021), IJCRT | Volume 9, Issue 7. Using the Sharpe Index to BuildtheBestPortfolioofNifty50SecuritiesOvera10-YearTimeframe:Aportfolioisthesumofalltheassets and financial instruments that a single person, known as an investor, owns. The paper's goal is to assist these investors in building the best possible portfolio.

4. Archana, H.N. and Srilakshmi, D. (2020), created an ideal portfolio utilizing Sharpe's model, taking into account ten stocks from manyindustries ,out of the thirty stocks listed on the BSE. The study's closing price data was collected between January 1, 2019, and December 31, 2019. Ten stocks—Nestle India, Bharati Airtel, TCS, Bajaj Finance, Reliance, Infosys, Kotak Bank, Titan, ICICI Bank, and Asian Paints—were chosen in order to create the best possible portfolio.
5. Tanuj Nandan, Nivedita Srivastava (2017), stocks in the NIFTY 50 portfolio. The study discovered a straightforward way for determining the ideal portfolio. Compared to other models, fewer variables were included in this approach.
6. Subhodeep Chakraborty andAjay Kumar Patel (2017), Building an Ideal Portfolio with Markowitz and SSI Models, Journal of General Management Research. This study's primary goal is to use the Sharpe model to buildthebestpossibleportfoliofortheIndianmarket.50equitiesfromtheNSENIFTY50Indexwerestudied, and weekly data for each stock from September 14, 2016, to September 15, 2017, was taken into account. This data was then transformed into annual data.
7. Murthy, J. (2016), attempted to construction of Portfolio. The study's objective was to choose stocks that are part of the Nifty Metal index; 14 metal stocks were chosen from the iron and steel sector. Monthly stock price data were collected from January 2012 to December 2016. According to the study, only two companies' stocks—Vedanta (86.37%) and Tata Steel (13.62%)—make up the ideal portfolio.
8. Dr. S. Poornima, Aruna P. Ramesh (2015), Creating the portfolio with BSE stocks using the Sharpe Index Model. Only 20 companies' stocks are selected for the study in order to buildportfolio, and annual prices are taken into account rather than daily or weekly ones.
9. Shah, C.A. (2015), in his paper titled on Optimal portfolio Construction using index model and for BSE 15companies securities. The goal is to use the Sharpe model to create the ideal portfolio. The analysis takesinto account the top 15 corporations based on their market capitalization. Data was gathered by the researcher fromwww.bseindia.com.ThefindingsofthestudywasthatinvestorscaninvestmoneyintoHDFCBank,ICICI Bank, TCS, and TATA Motors out of 15 firms.
10. Poornima, S and Ramesh, A.P. (2015), have used the Single Index Model to study optimization of portfolio, taking into account 20 stocks chosen from each industry between January 2010 and December 2015, with a focus onthe banking and ITsectors. Threebusinesses are chosen for thestudy's portfolio construction.Ramco Systems Company (50%) and Axis Bank (38%) are chosen for portfolio construction from the banking and IT sectors, respectively.
11. Francis and Rathika (2015), Focused on building a model that utilizes the closing prices of ten companies monthly listed on CNX Pharma and NSE. The tenure of the study extended from September 2010 toSeptember 2014. Among the ten companies, only their equity was selected for analysis.
12. Chintan A. Shah, Bhagwan Mahavir (2015), Create a portfolio utilizing the Sharpe Ratio Model and CAPM Model for the leading 15 securities on the BSE as a reference.
13. Nithya.J (2014), Constructed by focusing on large-cap firms, utilizing (SIM) to reduce the value of holdings. From the pharmacy industry, he thoughtfully chose eight stocks to include in the investment strategy.
14. Chauhan (2014), In the study, the leading 10 stocks from the NIFTY index were examined. The method was simple and uncomplicated in establishingthe most effective portfolio. This strategy is based on a minimumset of factors and is aptly named, as it employs only one index. In Nalini's (2014) research, she analyzed 15 stocks from different sectors of the S&P index, particularly from BSE, to implement here.
15. Nalini, R. (2014), carried out The percentage of investment and portfolio construction by using SIM model of 15 companies from BSE during 2009 to 2017. Out of 15 stocks four stocks were included in portfolio - ITC (70.88%), TCS (10.08%), Dr Reddy's Laboratories (17.41%) and Bajaj Auto (1.63%).
16. Nalini (2014), Using the BSE Sensex as the market indicator, she examined 15 equities from the S&P index across a range of industries. It was discovered that portfolio diversification can lower risk. Just four equities were chosen for the ideal portfolio.

17. Andrade, Pratibha Jenifer (2012), intended to use SIM to create the best possible stock portfolio for the IT industry. Six of the best-performing IT companies listed on the BSE have been selected for this study. The information pertains tothe stocks'dailyreturns, while themarket index was gatheredfrom secondarysources. Threeyears'worthofdata, from2009to 2011,havebeengathered.It wasdiscoveredthatfivebusinesses made up the ideal portfolio.
18. Debasish, Satya Swaroop, and Khan, Jakki Samir (2012), selected a sample of 14 NSE-listed stocks from a variety of manufacturing industries, including cement, autos, paints, textiles, and oil and refineries. All of the chosen stocks' daily data was examined between January 2003 and November 2012. A number of parameters, including beta value, unsystematic risk, stock price volatility, returns on stocks, and risk-free returns, were taken into consideration while allocating investment in each stock. Only three stocks made up the ideal portfolio among the 14 firms that were assessed using the Single Index Model (SIM).
19. Taking the BSE SENSEX as the market performance index and taking into account daily indices and the daily prices of sample securities for the period of April 2001 to March 2011, B.N. Dutta (Smriti Mahavidyalaya) and Burdwan (2011) empirically design an optimal portfolio.

Consequently, the study's literaturereviewshowed that there is a lot of room to explorethesuitability of Sharpe's Single Index Model in Indian contexts, especially in relation to the securities of companies listed on the BSE and NSE, which are viewed as investment platforms by both individual and institutional investors.

3. MethodsandMaterials:

OBJECTIVE:

- Tocalculatetheindividualrisk,returnofselectedstocks.
- Tocalculatethecut-off,pointtodeterminetheselectedstocks.
- ToconstructportfoliousingtheSharpe'ssingleindexmodelandCAP.

RESEARCHMETHODOLOGY:

The study uses secondary data and is analytical in character. Data for this study was gathered from two websites: www.investopedia.com and www.nseindia.com. The Nifty 50 index is selected by the Market Index research. Monthly prices for each of the NSE's 50 stocks are collected between June 2019 and May 2024.

Qualitative factor : Focuses on the non-numerical aspects of a company, such as its business model, competitive positioning, management quality, corporate governance, and industry outlook.

Quantitative factor : Analysing numerical data from financial statements, calculating financial ratios, and assessing key performance metrics to determine a company's financial health and growth prospects.

TOOLSUSEDFORTHESTUDY:

FINANCIALTOOL:Sharpe'sSIM

STATISTICALTOOL:StandardDeviation(S.D),Variance($S.D^2$),Beta- volatility,Cut-off-Rate(ci)

FlowPathway:

Step1: Two sets of twelve equities each from eight high-performing sectors of the Nifty large-, mid-, and low-cap companies were chosen.

Step2:Computationofmeanreturnofstocks

Itiscalculatedusingaformulathatdividesthepricedifferencebetweenyesterdayandtodaybythevaluefrom yesterday..

$$Ri = \frac{pt - (Pt-1)}{Pt-1}$$

Step3:RankinguponExcessReturn

Excess return is the difference between the stock's expected return and the risk-free rate. It is the extra money that investoranticipatesmakinginexchangefortakingontheriskofpurchasingacertainshare. The volatility of equities in relation to the market as a whole is measured by beta. Despite having a beta, a stockwith a beta of 2.0 is twice as volatile as the market, whereas a stock with a beta of 1.0 is just as unpredictable.

$$\text{Excess Return to Beta} = \frac{Ri-Rf}{\beta i}$$

Step4:Calculationofsystematicandun-systematicrisks Step 5:

Calculation of Cut-Off Point

Calculatedthroughthespecifiedformulabyutilizingvarioustypesofrisk,volatility,andthecorrespondingexcess return**.**

$$Ci = \frac{\sigma m^2 \sum \frac{(Ri-Rf)}{\sigma_{ei}^2} \beta i}{1+\sigma m^2 \sum \frac{\beta i^2}{\sigma_{ei}^2}}$$

Step6:ProportionofInvestmentCalculation

It helps investors determine a company's value and financial performance. Absolute values make an effort to assess the company's inherent value using anticipated cash flows..

$$Zi = \frac{\beta i^2}{\sigma_{ei}} \left(\frac{(Ri-Rf)}{\beta i} - Ci^* \right)$$

Step7:Investmentweightingcalculation

Bringinginportfoliosthathavestrayedfromassetallocationisnecessarytomaintainaconstantinvestmentmix.

$$(Xi) = \frac{Zi}{\sum Zi}$$

Buyingandsellingunderweightassetsisacommonmethodofthispractice.

Step8:Determinetwoportfoliosets'riskandyield(return).

Step 9: Create the best-returning portfolio possible.

4. DataAnalysisandResults:

CALCULATIONOFMEANANDRANKINGBASEDONEXCESSRETURNTOBETAPOR

TFOLIO- 1

STOCK	BETA	ri-rf	(Ri-Rf)/Beta	Rank	Avg. Returns
T.C.S	0.62	1.15%	0.02	6	0.02
MPHASIS	0.7	2.76%	0.04	1	0.03
CYIENT	1.06	4.08%	0.04	2	0.05
SUN INDUSTRIES-PHARMA	1.02	2.55%	0.02	4	0.03
I.P.C.ALAB	0.84	0.13%	0.00	10	0.01
GRANULARINDIA	0.51	1.87%	0.04	3	0.03
BHARTI-AIRTEL	0.6	1.16%	0.02	5	0.02
TATA LTD - COMMUNICATION	2.33	0.00%	0.00	12	0.06
SUN-TV	0.88	0.83%	0.01	7	0.01
NESTLEINDIA	0.57	0.02%	0.00	11	0.01
P&GHYGIENE	0.37	0.23%	0.01	8	0.01
BAJAJ-CONSUMER	1.04	0.17%	0.00	9	0.01

PORTFOLIO-2

STOCKS	BETA	ri-rf	(Ri-Rf)/beta	Rank	Avg. Returns
ASIAN-PAINTS	0.85	1.14	1.33	10	1.76
PIINDUSTRIESLTD	1.50	2.57	1.71	8	3.19
DEEPAK-FERTILISERS	1.31	6.26	4.77	2	6.88
HDFC	1.43	0.96	0.73	11	1.58
CANARA-BANK	1.74	3.32	2.31	6	3.94
IDBI	0.61	3.45	1.98	7	4.07
MARUTISUZUKI	1.00	1.46	2.38	5	2.08
BALKRISHNA	1.10	2.43	2.42	4	3.05
APOLLO-TYRES	1.18	3.74	3.39	3	4.36
RELIANCE	0.91	1.84	1.56	9	2.46
JSWENERGY	1.03	5.73	6.29	1	6.35

CALCULATIONOFSYSTEMATICANDUN-SYSTEMATICRISKS

STOCKS	BETA	risk(σi)	variance	beta^2	sigma m2	systematic	unsystematic
TCS	0.62	6.45	41.57	0.39	23.00	8.90	32.67
MPHASIS	0.70	11.07	122.55	0.49	23.00	11.30	111.25
CYIENT	1.06	11.04	121.89	1.13	23.00	25.96	95.93
SUN-PHARMA INDUSTRIES	1.02	8.07	65.11	1.05	23.00	24.12	40.99
IPCA–LAB	0.84	8.44	71.21	0.71	23.00	16.23	54.99
GRANULARINDIA	0.51	10.72	114.99	0.26	23.00	5.98	109.01
BHARTIAIRTEL	0.60	16.86	284.34	0.36	23.00	8.28	276.06
TATA COMMUNICATION	2.33	16.86	284.34	5.43	23.00	124.86	159.47
SUN TV NETWORKLTD	0.88	9.53	90.73	0.78	23.00	17.90	72.83
NESTLEINDIA	0.57	5.02	25.22	0.32	23.00	7.45	17.78
P&GHYGIENE	0.37	4.59	21.03	0.14	23.00	3.15	17.88
BAJAJ–LTD	1.04	9.14	83.52	1.08	23.00	24.88	58.64

PORTFOLIO2

STOCK	BETA	risk(σi)	variance	beta^2	sigma m2	systematic	unsystematic
ASIAN-PAINTS	0.85	8.68	75.29	0.73	23.00	16.68	58.60
PI INDUSTRIES LTD	1.50	10.51	110.52	2.25	23.00	51.68	58.84
DEEPAK - FERTILISERS	1.31	16.24	263.67	1.72	23.00	39.47	224.20
HDFC	1.31	7.37	54.36	1.72	23.00	39.47	14.89
CANARA BANK	1.43	12.43	154.46	2.06	23.00	47.30	107.16
IDBI	1.74	22.39	501.40	3.03	23.00	69.63	431.77
MARUTI-SUZUKI	0.61	7.07	50.01	0.37	23.00	8.61	41.39
BALKRISHNA INDUSTRIES LTD	1.00	10.23	104.75	1.01	23.00	23.18	81.57
APOLLO-TYRES	1.10	9.53	90.81	1.21	23.00	27.88	62.93

RELIANCE-INDUSTRIES	1.18	9.00	80.91	1.39	23.00	32.03	48.89
JSWENERGY	0.91	18.22	331.95	0.83	23.00	19.05	312.90
MAHANAGAR-GAS LTD	1.03	8.64	74.59	1.07	23.00	24.54	50.04

USING(SIM)TOFINDCUTOFFPOINT.PORTFOLIO 1

					(Ri-Rf) *β/			∑((Ri-Rf) *	∑ (βi2/	
Rank	stocks	ri-rf	beta	σei2	σei2	beta^2	βi2/ σei2	β/ σei2)	σei2)	ci
1	M-PHASIS	0.03	0.70	111.30	0.00	0.49	0.00	0.00	0.00	0.00
2	CYIENT	4.08	1.06	95.92	0.05	1.13	0.01	0.05	0.02	0.76
3	GRANULAR-INDIA	1.87	0.51	109.00	0.01	0.26	0.00	0.05	0.02	0.87
4	SUNPHARMA	2.55	1.02	40.99	0.06	1.05	0.03	0.12	0.04	1.34
5	BHARTI-AIRTEL	1.16	0.60	276.10	0.00	0.36	0.00	0.12	0.05	1.35
6	TCS	1.15	0.62	32.67	0.02	0.39	0.01	0.14	0.06	1.41
7	SUN-TVNETWORK LTD	0.83	0.88	72.82	0.01	0.78	0.01	0.15	0.07	1.37
8	P&GHYGIENE	0.23	0.37	17.88	0.01	0.14	0.01	0.16	0.08	1.32
9	BAJAJCONSUMER CARELTD	0.17	1.04	58.63	0.00	1.08	0.02	0.16	0.09	1.16
10	IPCALAB	0.13	0.84	54.98	0.00	0.71	0.01	0.16	0.11	1.08
1.1	NESTLEINDIA	0.02	0.57	17.77	0.00	0.32	0.02	0.16	0.13	0.96
12	TATA COMMUNICATIONLTD	0.00	2.33	159.50	0.00	5.43	0.03	0.16	0.16	0.80

PORTFOLIO2

Rank	stocks	ri-rf	beta	σei2	σei2	beta^2	βi2/ σei2	/ σei2)	∑ (βi2/ σei2)	ci
1	JSW-ENERGY	5.73	0.91	312.9	0.017	0.828	0.003	0.017	0.003	0.361
2	DEEPAK FERTILISERS	6.26	1.31	224.2	0.037	1.716	0.008	0.053	0.01	0.989
3	APOLLO-TYRES	3.74	1.101	62.92	0.065	1.212	0.019	0.119	0.03	1.623
4	BALAKRISHNA LTD	2.43	1.004	81.56	0.03	1.008	0.012	0.148	0.042	1.738
5	MARUTI-SUZUKI	1.46	0.612	41.39	0.022	0.375	0.009	0.17	0.051	1.799

6	CANARABANK	3.32	1.434	107.2	0.044	2.056	0.019	0.214	0.07	1.886
7	IDBI	3.45	1.74	431.8	0.014	3.028	0.007	0.228	0.077	1.891
8	PIINDUSTRIES	2.57	1.499	58.83	0.065	2.247	0.038	0.294	0.115	1.848
9	RELIANCE-INDUSTRIES	1.84	1.18	48.88	0.044	1.392	0.028	0.338	0.144	1.803
10	ASIAN PAINTS	1.14	0.852	58.6	0.016	0.725	0.012	0.354	0.156	1.774
11	HDFC	0.96	1.31	14.89	0.084	1.716	0.115	0.438	0.271	1.392
12	MAHANAGAR-GASLTD	0.27	1.033	50.04	0.005	1.067	0.021	0.444	0.293	1.32

CALCULATIONOFABSOLUTEPROPORTIONONINVESTMENTPORTFOLIO 1

Rank	Stocks	beta	σei2	beta/σei2	(Ri-rf)/beta	zi	Xi	Xi%
1	M-PHASIS	0.70	111.25	0.01	0.04	0.00	0.22	21.93
2	CYIENT	1.06	95.92	0.01	0.04	0.00	0.37	36.72
3	GRANULAR	0.51	109.00	0.00	0.04	0.00	0.14	14.11
4	SUNINDIA PHARMA	1.02	40.99	0.02	0.02	0.00	0.27	26.91
5	BHARTI AIRTEL	0.60	276.05	0.00	0.02	0.00	0.00	0.32
6	TCS	0.62	32.67	0.02	0.02	0.00	0.00	0.00
					Total	0.00	1.00	100.00

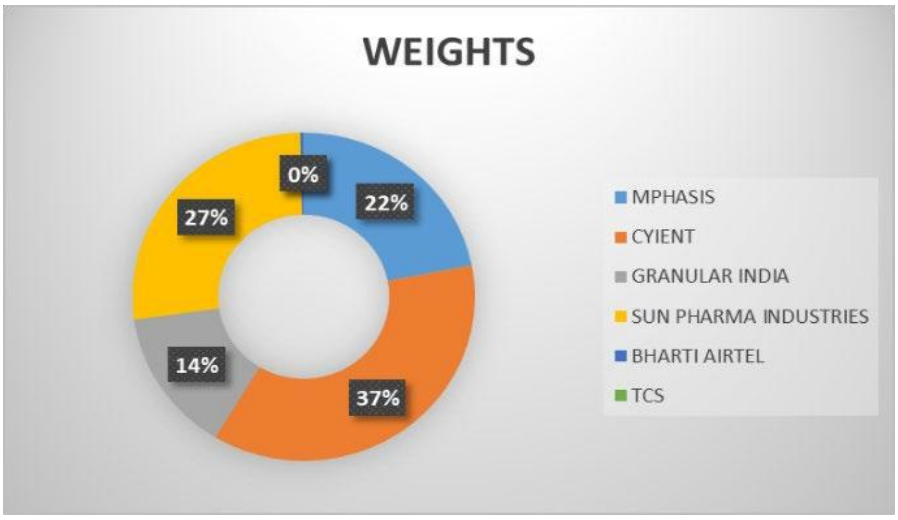
PORTFOLIO:2

Rank	stocks	beta	σei2	beta/σei2	(Ri-rf)/beta	zi	Xi	Xi%
1	JSWENERGY	0.91	312.90	0.00	6.29	0.01	0.17	16.94
2	DEEPAK - FERTILISERS	1.31	224.19	0.01	4.77	0.02	0.22	22.31
3	APOLLO-TYRES	1.10	62.92	0.02	3.39	0.03	0.35	34.78
4	MARUTI-SUZUKI	1.00	81.56	0.01	2.42	0.01	0.09	8.54
5	PI-INDUSTRIES	0.61	41.39	0.01	2.38	0.01	0.10	9.51

6	CANARA-BANK	1.43	107.16	0.01	2.31	0.01	0.07	7.44
7	IDBI	1.74	431.76	0.00	1.98	0.00	0.00	0.47
					TOTAL	0.08	1.00	100.00

Calculatingtheportfolio'srisk-returnfor2setsPORTFOLIO1

PORTFOLIO RETURN	1.925114
PORTFOLIORISK	6.346997



PORTFOLIO2

PORTFOLIO-RETURN	2.208
PORTFOLIO-RISK	7.27

5. Discussions:

Followingathoroughexamination,thetwomostadvantageousportfolio'swerecreated,eachwithamaximum return.Portfolio1hadsixcompanies,whilePortfolio2includedseven.

The return on portfolio 1 is 1.92% with a risk of 6.34%, but the return on portfolio 2 is 2.20% with a risk of 7.27%.When compared to all other firms, CYIENT is assessed to have had the best return (4.71%), while DEEPAK FERTILISERS CORP LTD produced the highest return (6.88%).

Forportfolio1,CYIENThasthemostvolatilestock(systematicallyrisk=1.06),CANARABANKhastheleast volatilestock(systematicallyrisk=1.434(>1)),GRANULARINDIAhasthemostvolatile stock(systematically risk = 0.51), andMARUTI SUZUKI has the least volatile stock (systematically risk = 0.612).The 365-day T-BILLS arechosen from the RBI at 7.5% per annum (0.625% per week) to calculate the excess returns of stock.

By evaluating the justifications for including securities in the portfolio along with their relative weights, Sharpe'ssingle index model offers a simple method for creating the best possible stock portfolio for a logical investor..

SUGGESTION:

- Therecommendationsaresolelybasedon SIM,whichadvisesinvestorsonwhethertobuyorsellshares.
- The portfolio 2, which includes JSW Energy, Deepak Fertilizers and Petrochemicals Corp Ltd, Apollo Tyres, Balkrishna Industries Ltd, Maruti-Suzuki, Canara Public Bank, and IDBI, is recommended for investment ifany investor is prepared to consider the aforementioned companies.
- AninvestorcaninvestthemaximumproportioninApollotyresstockoftheportfolio.

SELECTINGTHEOPTIMUM-PORTFOLIOWITHHIGHRETURN.

- Portfolio1yields1.92%returnwith6.34%ofriskwhileportfolio2yields2.20%ofreturnwith7.27%ofrisk.
- Henceportfolio2isselected.

6. Conclusion:

TheSharpeIndexModelapproachisthoughttobeagreattechniquetocreatetheperfectportfolio. The fluctuationsofthesemarketsecuritiesarenot likelytobegovernedbymacroeconomicorothermicroeconomic factors.

Suchresearchholdspromiseforthefuture,butitmustbevalidatedwiththevarioussampletechniquescurrently available. Casualobservationovertimesuggeststhatstockpricestrackchangesinmarketindexes. Pricestypicallyrise withincreasesintheS&Pand CNXNiftyindices,andviceversa.This illustrateshowseveral otherfundamentalfactorsaffectthestockprice aswell astheparticularfirm.This portfoliohasbeentakenusing theresultsofS&P and CNX Niftycompany overthelast fiveyears,takinginto account all ofthese presumptions.

Increased adoption: More traders and investors are expected to adopt technical analysis as a primary method formaking trading decisions.

Backtestingandoptimization:Theimportanceofbacktestingandoptimizingtechnicalanalysisstrategieswill continue to grow, ensuring that traders can refine their approaches and improve performance.

Education and resources: Access to training, webinars, and online resources will expand, helping traders developtheir technical analysis skills.

7. ImplicationsandFutureScopeofStudy:

The research targets on stocks that are restricted to the Nifty Large Cap, Mid Cap, and Small Cap categories. Based on their potential, 24 companies were chosen from the NSE. Numerous factors considered in this research, including return - percentage, value of beta, residual values, the value of elected organizations, and of federalbonds, and the value of the (market) index. Establishing a cut-off point and utilizing the previously described components are the objectives.

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