“A study on performance evaluation of index mutual funds”

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Abstract:
This project deals with “A Study on performance evaluation on index mutual funds”
The schemes are
➢ ICICI Pru Nifty Index Fund(G),
➢ SBI Nifty Fund-REG(G),
➢ TATA Nifty Index Fund-REG(G),
➢ LIC MF Nifty Index Fund (G),
➢ IDBI Nifty Index Fund(G).

A mutual fund is a scheme in which several people invest their money for a common financial cause. The collected money invests in the capital market and the money, which they earned, is divided based on the number of unit, which they hold. The mutual fund industry started in India In a small way the Uti act creating what a small savings division was effectively within the RBI over a period of 25 years this grew fairly successfully and gave investors a good return and therefore in 1989,as the next logic step, public sector banks and financial institutions were allowed to float mutual fund and their success emboldened the government to allow the private sector to foray into this area.

Objectives of the study
• To analyze risk and return of selected index mutual funds
• To study the performance of selected index mutual fund by using Treynor, Sharpe model
• To rank the index mutual funds by using elected models

The advantage of mutual fund is professional management, diversification, economies of scale, simplicity, and liquidity, the disadvantage of mutual fund is high costs, over diversification, possible tax consequences, and the inability of management to guarantee a superior return. the biggest problems with mutual funds are their costs and fees it include purchase fee, redemption fee, exchange fee, management fee. Account fee and transaction costs. There are some loads which add to the cost of mutual fund loans is a type of commission depending on the type of funds.

Mutual fund are easy to buy and sell, you can either buy them directly from the fund company or through a third party. Before investing in any funds are should consider some factor like objective, risk, fund manager and schemes track record, cost factor etc.

A code of conduct and registration structure for mutual fund intermediaries, which were subsequently mandated by SEBI. In addition, this year AMFI involved in a number of developments and enhancements to the regulatory framework.

INTRODUCTION:
In a mutual fund, the money of several investors is pooled for a certain purpose. When the money has been gathered, the fund manager will invest it in a variety of assets, based on the scheme's goal. Shares, debentures, and money market instruments are all examples of these. A part of the profits and gains made by the scheme are distributed to its unit holders based on how many units they possess (pro rata). If you're looking for an investing option that allows you to diversify your portfolio while yet keeping costs low, Mutual Funds are your best bet. Investors with as low as a few thousand rupees in investible cash may participate in the Mutual Funds market. There is a specific goal and approach for each Mutual Fund programme.

For most investors, mutual funds are currently the best option available. Investors demand a financial intermediary who can offer them with the necessary information, professional competence for successful investment as financial markets grow more sophisticated and complicated. For investors, maximizing profits and minimizing risk is always the goal. Investing in a mutual fund meets these criteria since it offers both good rewards and little risk.

HISTORY OF MUTUAL FUNDS
The following is a brief overview of mutual funds' historical development:
Phase I: 1964-1987: Parliament discovered UTI in 1963 and granted it a monopoly under the UTI Act. As of 1986, the main equity fund had its first investment.
PNB open-end fund, SBI open end fund, and LIC open end fund were all public sector mutual funds that were not part of UTI's Phase II from 1987 to 1993.
Phase III: From 1993 to 1996, non-public sector funds were offered as open-end mutual funds for investors to choose from.
Phase IV: 1996: Restrictive measures beneficial to capitalism SEBI have made steps to protect investors and to improve their profits via the use of tax loopholes.

Meaning of mutual funds:
To put it another way, the role of a mutual fund is simply that of an intermediary, allowing a group of investors to combine their resources in pursuit of a certain investment goal. Investing in particular assets is the responsibility of a fund manager for mutual funds (stocks or bonds). As a result of making an investment in a mutual fund, you become a shareholder or unit holder in the fund. You may think of it this way: Compared to other investments, mutual funds are regarded to be one of the most cost-effective and...
easiest to invest in, so investors may acquire stocks or bonds with reduced trading expenses by pooling their money together in a mutual fund. However, diversification, risk minimization, and return maximization are the most important advantages of mutual funds.

**Features of Mutual Funds**
- At the beginning of a fund, investors buy standard units of predetermined value.
- Most funds also allow investors to join at the current market value of the units.
- There is a specific goal for each fund.
- Each fund's investing strategy will be tailored to its specific goals.
- Investors may choose from a variety of investment options depending on their specific financial goals.
- Professional fund managers charge a fee for their services.
- Any specific unit's worth is influenced by the value of the fund's investments at any given moment in time.
- Subject to the fund's terms and conditions as indicated when it was first established. The investors have complete control over when and how they redeem their money.

**Organization’s structure of mutual funds:**

![Organization’s structure of mutual funds](image)

**Types of Mutual Funds**

![Types of Mutual Funds](image)

**By Structure:** Open-Ended Schemes, Close-Ended Schemes, Interval Schemes

**Money Market Schemes, Growth Schemes, Balanced Schemes, and Money Market**
Other Plans: Tax Saving Plans, Special Plans, Index Plans, Sector Specific Plans

BY STRUCTURE

Investing in an open-end fund means that you may invest at any time of the year. These don't have a predetermined age at which they reach maturity. Investors may easily acquire and sell units at NAV-related prices, which is advantageous for investors. In open-end systems, liquidity is the most important quality. Plans with a Predetermined Maturity Duration: These plans have a predetermined maturity period. At the time of the first issuance, one may invest directly in the programme. After the original offer time expires, an investor has two alternatives for getting out of the programme, depending on how it is set up. There are stock exchanges where investors may purchase and sell the units of the programme. Open-ended and closed-ended characteristics are combined in interval schemes. At NAV-related prices, the units may be exchanged on a stock market or made available for sale or redemption in advance.

By investment objective:

Growth Schemes: Equity schemes and growth schemes are both terms used to describe the same thing. Medium to long-term capital appreciation is the goal of these plans. Equities make up the bulk of these funds, and they're ready to accept a short-term loss in value in exchange for long-term gains. Income Schemes: Debt plans and income schemes are both terms used to describe the same thing. These programmes are designed to offer investors with a stable stream of income on a regular basis. Bonds and corporate debentures are common investments in these plans. Capital gains may be restricted in these types of investments. Balanced Schemes: By sharing a portion of the income and capital gains they make, Balanced Schemes attempt to offer both growth and income. These plans make a mix of equity and fixed income investments according to the percentages listed in their offering materials (normally 50:50). There are a variety of money market mutual funds (MMMF) or market schemes that seek to offer simple liquidity, capital protection, and modest returns. Investments in short-term products including treasury bills, certificates of deposit and inter-bank call money are common in these programmes.

Other schemes

Tax Saving Schemes: Investors in tax-saving plans are eligible for refunds of their taxes, as provided for under various tax legislation. ELSS contributions may be deducted from taxable income under Section 80C of the Internal Revenue Code. Index Schemes: One of the most popular indexes is the BSE Sensex, which measures the performance of Indian stocks. Only the equities that make up the index will be included in the portfolios of these plans. A stock's weight age will be reflected in its weight % in the overall holdings. As a result, the returns from such methods would be almost identical to the Index's return. Sector Specific Schemes: In the offer papers, these are the funds/schemes that solely invest in the securities of particular sectors or industries. Other examples include pharmaceuticals and software as well as Fast Moving Consumer Products (FMCG). The fund's returns are tied to the performance of the underlying businesses and sectors. The returns from these funds may be larger, but the risk they carry is higher as well. These sectors/industries need investors to keep a close eye on them and depart when the timing is right.

Merits of Mutual Funds:

Professional Management - Because MFs are professionally managed by highly experienced professionals, they have a significant advantage over other investment vehicles. They buy funds because they lack the time or skill to manage their own portfolio. A mutual fund is seen as a less costly method of investing and keeping track of one's assets. Diversification - Instead of buying individual stocks or bonds, investors may spread out their risk by purchasing units in a mutual fund. Diversification is the practice of investing in a wide range of assets so that a loss in one investment may be offset by a profit in another. Economies of Scale - To reduce transaction costs, mutual funds purchase and sell large quantities of securities at a time, thereby allowing them to lower the average cost of a mutual fund unit for investors. Liquidity - Mutual funds, like individual stocks, enable investors to sell their investments at any time. Simplicity - When compared to other financial products on the market, investing in mutual funds is thought of as simple, and the required minimum investment is modest. For as low as Rs. 2000, most AMCs provide automatic purchase plans that may be set up for as little as Rs.50 per month, making it easy to get started with a SIP.

Demerits of Mutual Funds:

High Cost – The entry and exit load that MF collects from investors at the time of purchase is often their largest source of venue. Reduction - A few well-performing investments may have little impact on the total return since mutual funds often own tiny takes in a variety of businesses. Taxes - Fund managers don't take your individual tax position into account when making investment selections.

Mutual funds are generally placed into one of four prime categories:
1. Open-ended mutual funds that invest in short-term debt securities such as US Treasury bills and commercial papers are known as money market capital. The risk in money markets is often lower.
2. A bond or other mortgage-backed security investment fund, often known as mortgage capital or bond finance, is a kind of mutual fund. Investing in bonds pays a steady income. When opposed to money market funds, which likewise strive to provide larger returns, this form of vehicle carries more risk.
3. Stock funds: It’s a fund which invest in corporate stock, some examples of stock funds are:
• Growth funds is a mutual funds which only focus on stock, which does not pay a regular dividend, the capital appreciation is their basic goal.
• Income capital is kind of mutual fund that finance in stock that pays periodic dividend.
• Index funds keep a consent check on market index.
• Part funds mainly perfect in a single industry division.

Challenges for the Mutual Fund
Smaller cities and towns are hindered in their financial product penetration by a lack of financial education and awareness, one of the most essential issues. Another key challenge for fund houses is the distribution of their goods in smaller locations where excellent distribution infrastructure is available. Infrastructure such as branches and a suitable number of relationship managers and sales support personnel in these locations are essential for fund houses in order to boost revenue. The expense of setting up a distribution network is substantial. Cost per transaction or low sales volume is what makes the endavour financially unviable or at the very least difficult. Individuals in India place a high value on material possessions, with physical assets accounting for 46% of their overall net worth (gold and real estate). Despite the fact that clients' reliance on financial assets to invest their resources has grown in recent decades, MFs make up a fairly small portion of the asset portfolio. Individual savings in financial assets are made up of 17 percent insurance goods, while mutual funds make up less than 3 percent. It is possible for fund houses to benefit from a bank's extensive branch networks that extend into the hinterland. Bank-sponsored AMCs like HDFC MF and SBI MF have a leg up on the competition. New AUM can be gained via internet and mobile banking channels since the cost of setting up distribution is quite expensive. Investors are increasingly turning to mutual funds over the internet. Almost all of India's fund firms provide internet transaction services.

Factors affecting on Mutual funds
Changes in Markets/Sectors/Industries – The Most Important Factor Affecting the Performance of Mutual Funds One of the most significant aspects is the fluctuation of markets and economic sectors. A mutual fund scheme's performance is based on this metric. Mutual fund performance may also be greatly affected by a few policy changes made by the relevant government. Underlying Securities – A Big Influencer on Mutual Funds' Performance A mutual fund invests in a wide variety of assets based on risk and asset allocation. Total Expense Ratio (TER) – An Asset Management Company charges a fee for their services (AMC). The performance of your mutual fund is also affected by the cost ratio. Management, marketing, administrative, and clerical services are all included in the cost charged by any fund house. Additional operating costs include trading fees, legal fees, and auditor fees. Flow of Cash – An Asset Management Company's management fees are what we're talking about here (AMC). Additionally, your mutual fund's expenditure ratio has an effect on its performance. Management, marketing, administrative, and clerical services are all included in the cost of operating a fund house. Additional operational costs include trading fees, legal fees, and auditor fees, which you must spend to keep your business running smoothly.

Index mutual funds
There are certain requirements that must be followed in order for an index fund (also known as an index tracker) to be able to track a certain set of assets. "Reluctant regulators" are sometimes referred to as "revenue-driven" index providers, although this is not always the case. Index funds' current policy may allow them to find outstanding indices such as the S&P 500 or the Dow Jones Industrial Average or implementation rules like tax management, finding error minimization, large block trading or flexible trading planning, allowing for greater finding error but less market impact costs to be added. Additionally, index funds may have policies in place to protect a client's social and economic status.

Index fund creation guidelines, one of the predetermined rules, accurately identify the types of businesses that are financially intertwined. The S&P 500 Index Fund, often referred to as an index fund in the United States, is based on the S&P Dow Jones Indices S&P 500 Index. Equity index funds invest in equities that have similar characteristics, such as their size, value, profitability, and location. Companies that are small, medium, big, small, large, value, small growth and large growth; the amount of gross profitability or invested capital; real estate; or indexes based on stocks and fixed income. Among index funds' numerous advantages is the fact that investors don't have to spend as much time managing several stock portfolios as do capitalists. Many investors struggle to beat the S&P 500 Index's execution because they lack financing experience. Some legal experts believe that index fund stewardship may be better understood using a value increase and agency-costs model. One index provider, Dow Jones Indexes, has more than 130,000 indices available. Since all bonds and products are maintained in a clear, detached, and flawless structure, Dow Jones Indexes claims that the index group's components are all clearly linked to one another.

Advantages of Index Mutual funds
Low costs: In the index mutual fund the cost is less as compared to other quantity value. In countries like USA the index mutual fund range from 0.10% and large index rates in emerging market indexes. Simplicity: Managing index fund is easy and it is simple to study. One time an investor knows the index figures it becomes easy for them to determine. This can be managed every six months or yearly which would be easy. Lower turnovers: turnover is one of the important aspects in any buying and selling of any securities and shares. In index mutual fund there are some factors like explicit and implicit factors which impact it on dollar-to-dollar basis in the market. They are passive investment, so the turnovers are actively lower. No style drift: In this process there is particular style in the field of finance. This portfolio may affect in the diversification of the investment in index mutual fund.

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Disadvantages of index mutual funds
Losses to arbitrageurs:
The lack of a safety net.
Lack of capacity to respond quickly.
Limited exposure to different satisfaction.

Introduction about the selected companies
List of NSE 5 firms for an optimum performance evaluation

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<th>Si No</th>
<th>Name of the company</th>
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<td>01</td>
<td>SBI Nifty Index Fund-REG(G)</td>
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<td>TATA NIFTY Index Fund(G)</td>
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<td>03</td>
<td>IDBI Nifty Index Fund(G)</td>
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<td>04</td>
<td>ICICI Prudential Nifty index Mutual Fund(G)</td>
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<td>05</td>
<td>LIC MF NIFTY INDEX FUND(G)</td>
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About SBI NIFTY INDEX FUND-(G)
Traded as NSE and BSE
Type of the company Private Company
Industry Mutual Fund
Founded in the year 1987
Headquarter Mumbai, India
CEO Vinay M Tonse

About TATA NIFTY Index Fund
Traded as NSE and BSE
Type of the Industry Private Company
Industry Mutual Fund
Founded in the year 1999
Headquarter Mumbai, India
CEO Milind Barve

About LIC MF NIFTY INDEX FUND(G)
Traded as NSE and BSE
Type of the Industry Pvt Co
Industry Mutual Fund
Founded in the year 1989
Headquarter Kolkata, India
CEO Imtaiyazur Rahman

About ICICI Prudential Nifty index Fund
About IDBI Nifty Index Fund(G)

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<td>Headquarter</td>
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<tr>
<td>CEO</td>
<td>Dinesh Pangtey</td>
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Benefits of investing in index funds

Low fees: It doesn't make sense for fund managers to employ a staff of analysts to assist them choose the best companies since index funds imitate their benchmarks. Stocks are also not being actively traded. All of these aspects contribute to index funds having minimal operating expenses.

Investing without bias is ensured by index funds, which use a regulation-based investment approach that is fully automated. The amount to be invested in different index funds is given to the fund manager with a clear mandate. Investing judgments are no longer tainted by human inexperience or prejudice.

To ensure that the portfolio is well diversified across all sectors and companies, it is best to invest money in a manner comparable to that of an index. As a result, a single index fund might provide an investor with access to a bigger portion of the market's returns. An investment in the Nifty index fund gives you exposure to 50 firms distributed across 13 different industries, from pharmaceuticals to finance.

Benefits of Index Fund Investing in Taxes The low turnover of index funds may be attributed to the fact that they are passively managed. Because fewer transactions are made, less capital gains are distributed to unitholders.

Easier to manage: Index funds are simpler to administer since fund managers don't have to worry about how the stocks in the index are doing in the market. A portfolio rebalancing is all that is required on a regular basis for a fund management.

Challenges of index mutual fund:

The lack of protection against the downside. Long-term, the stock market has shown to be a terrific investment, although there have been some hiccups along the way. Index investing does not allow for advantageous behavior because of its lack of responsiveness. If a stock is overpriced, it begins to have a greater impact on the whole index. Sadly, this is exactly the time when savvy investors would want to reduce their stock exposure. The indices are pre-determined and there is no way to change them. Investors that purchase index funds have little influence over the portfolio's holdings. You may have a list of firms you'd want to own, such as a bank or a food manufacturer that you've thoroughly investigated. Investors have employed hundreds of different methods to great effect, but purchasing an index of the market may not provide you access to many of these successful ones. A greater return may be achieved by combining several investment approaches. return on investment

As a final point, investment might lead to a decrease in personal satisfaction, particularly during times of market uncertainty. Investing in an index won't save you from having to watch stock prices all night, but picking individual companies can.

Literature review:
Manoj Kumar Dash and Dr. Gowri Shankar Lali (2018), Investors can use the findings of the study "Performance evaluation of equity based mutual funds in India" published in the International Journal of Engineering Sciences & Research Technology to help them make investment decisions based on the performance of investment company schemes with growth as their primary focus. The study's findings aid investors in making investment decisions involving mutual fund schemes, and it reveals that mutual funds are a superior investment platform since they provide excellent returns with less risk. Dr. Madhur Jain Promotional Professor Sigal is the name of Kr. Published in A Bi-annual Refereed International Research Journal titled "Performance Evaluation of Mutual Funds: A study of Selected Research," by Dr. Ajay Dwivedi (2014), the main focus of this study is to review about mutual fund investment policies and strategies used by various researchers in the past. Quantitative approaches of connection and correlation are used as sampling instruments. Mean chi-square technique and analysis of variance are used in the planning of Treynor's techniques to analyse variability quantitative relation, quantitative relation analysis, knowledge of knowledge, and results of research in the mutual funds and its performance evolution. The contribution of Sharpe, Jensen and Treynor is very important as a parameter for evaluation of mutual fund in almost all thought world. Dr. Nalini Prava Tripathy, thank you for your time. Equity Linked Savings Schemes, ICFAI Journal of Applied Finance, July 2004. Secondary data has been utilized and obtained from fact sheets, newspapers, journals, books, and magazines to analyze the chosen funds according to different performance ratios (Sharpe, Treynor, Jensen). To acquire an overview of the present performance trends in the Indian mutual fund market. The data were also collected from various websites of AMCs, AMFI, and moneycontrol.com,. outcome the research. Famas Net Selectivity Analysis shows that Kotak 50 Equity Fund has secured the highest value which shows the fund manager has the high ability to select the portfolio for the fund. Whereas the UTI Equity Fund has secured the lowest value which shows the fund manager has the lower fund selectivity ability skill while comparing to others. Aashka Thakkar, International Journal for Research in Engineering Application and Management (IJREAM): A Data Envelopment Analysis Approach to a Study of Selected Equity Mutual Funds (2019), The national capital market is expanding at a breakneck pace, offering investors a wide range of investment options. The goal of this research is to examine and quantify the factors that influence equity mutual fund performance, as well as to evaluate and quantify the effectiveness of a small number of growth funds using the DEA approach. One way to measure the efficiency of a production unit mathematically is to use a weighted sum of total output to total input ratio; the results of the research are used to judge the performance of various elect schemes based on their daily come recorded, but none of these schemes have shown a consistent return and performance over the study amount. MAMTA & SATISH CHANDRA OJHA, Study of Selected Equity Diversified Mutual Funds in India (2017), Indian equity diverse mutual funds' performance is the primary focus of this article. To gain a better understanding of current performance trends in the Indian mutual fund industry, secondary data was gathered from fact sheets, newspapers, journals, and books in addition to the primary goal of comparing the performance of Selected Equity Diversified Mutual Funds in India using the Sharpe and Treynor model. More information on mutual fund schemes is accessible to the general public after this study was gathered from AMCs, AMFI, and moneycontrol.com's websites. For the benefit of ordinary investors, this research gives some insights into mutual fund performance in order to aid them in making investment choices. That average people may use to make reasonable investment choices and allocate their money to the appropriate mutual fund scheme The open-ended NAV data used in the research was collected monthly. schemes. Mohamedzaheeruddin, Journal of Business and Management: Performance review of Indian mutual funds with particular reference to a few chosen financial intermediaries (2013), An overview of mutual funds in India, with specific recommendations on how to choose a lucrative go-between, is presented. Economic services are provided to small investors by the mobilisation of budget by a mutual budget business intermediary The study's goals were to compare the equity performance of HDFC, Birla Sun Life, and ICICI with that of the S&P CNX Nifty Index, to rank mutual funds based on their excellent performance, and to gather data using a descriptive design and a secondary source. To avoid risk, there are a number of other investment options, such as investments in other financial assets (stock market, debentures, bonds, Treasury bills, etc.) and non-financial assets (post office certificates, Bank deposits, Pension schemes, Real estate), as well as investments in other financial assets and non-financial assets. Dr.Ch. Hymavathi, A systematic investigation into the impact of mutual fund schemes on business may achieve the current study's goal of studying the performance of selected equity mutual fund schemes in India, as reported in the UGC Care Group I Listed Journal (2021). Websites like Yahoo Finance and Textbooks are used as secondary sources of data, which this study uses to examine and evaluate the risk and return components of random fund schemes from various business mutual funds. Risk and return analyses have been conducted independently on equity and debt funds. Then, the results have been interpreted. on them accordingly. S. Masperiyanann, Dr. MohanamaniP, In this objective study of the performance of selected Indian open-ended mutual funds using various performance ratios (Sharpe, Treynor, Jensen), data was gathered from fact sheets, newspapers, journals and books, as well as from publications like the International Journal of Business and Management Invention(2016). AMCs, AMFI, and moneycontrol.com were also used to gather the data. The results of the study show that the Kodak 50 Equity Fund ranks top in risk-adjusted return analysis when compared to other equity funds. An examination of Kodak 50 Equity Fund's Famas Net Selectivity Analysis reveals that the fund manager has a keen eye for picking the best investments for the fund. Subrata Roy, Traditional and Conditional Mutual Fund Performance: An Experiment Open-ended equities mutual fund schemes that have been in existence for at least three years, with some of the schemes having stopped their operations, were studied using standard and conditional methods to analyse stock selection and market timing performance. Further study is needed to quantify stock selection and market timing performance in order to improve conditional performance metrics further. Results, K.R. Mary Jasmine, International Journal of Civil Engineering and Technology (IJCIET): A Study on the Benefits of Mutual Funds for Customers (2018), A research has been done on the benefits that mutual fund buyers may get from investing in them. In today's society, the investment trust plays an important part in the investing pattern. Today, everyone is interested in owning some type of investment. And the majority of people want to invest in a way that involves less risk. The benefits of investing in mutual funds will be discussed in this article, which is written by a nurse. It's over: Mutual Funds are no longer the best option! In contrast, instruments such as stocks have a large supply. Increased profits despite the danger. Authority and bank deposits are two
examples of sources of funding. The capitalist will get lower returns and more security. In order to provide the best of both worlds to the capitalist, mutual funds seek to achieve a balance between risk and reward.

**Problem statement:**
In the above literature review we got to know that the research papers are on equity mutual funds, hybrid mutual funds, equity diversified mutual funds. By observation this we identified that the research papers are not done on the index mutual funds. So, the research gap or the problem identification is index mutual funds. This is the report on the index mutual funds that the listed company’s shares are ranked on the adjusted techniques.

**Objectives:**
- Selecting Index Mutual Funds to evaluate their risk and return
- Use Treynor, Sharpe and Jenson ratios to examine the performance of chosen index mutual funds.
- Index Mutual Funds may be ranked based on specified models.

**Variables:**
- Average Return
- Standard Deviation
- Beta
- Sharpe Measure
- Treynor Measure

**Research Design:**
Descriptive research

**Data collection:**
The information used in this project is derived entirely from secondary sources, such as web pages and academic journals.

**Data Frame:**
ICICI Pru Nifty Index Fund(G),
SBI Nifty Fund-REG(G),
TATA Nifty Index Fund-REG(G),
LIC MF Nifty Index Fund (G),
IDBI Nifty Index Fund(G).

**Data Size:**
Data size is 04-year NAV of every month end information.

**Data tools:**
Average return, Standard Deviation, Beta, Sharpe Ratio, and Treynor Ratio.

**Tools for analysis:**
MS. Excel.

**Scope of the study:**
- Standard deviation on the basis of yearly return.
- Know the average return. Information of funds and market Nifty index return is taken as Market return. Treynor, Sharpe model and performance.

**Limitation on the study:**
- This research provides information about selected index mutual fund schemes only.
- This study based on NAV (net asset value) data only.
- The study is consisting on only four years data.

**Analysis and Interpretation:**

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<td>05</td>
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Chart of Average return of all schemes:
Analysis:
From the above index mutual funds it is analyzed that the LIC mutual fund has the highest fund value i.e. 0.0532 and TATA mutual fund has 0.0531, SBI mutual fund has 0.0529, ICICI mutual fund has 0.0529 and IDBI mutual fund 0.0508.

Interpretation:
The results of the investigation suggest that the overall mutual fund’s average return has been determined. The IDBI’s average returns are extremely low, which implies that the return on investment is very poor. The reason for this may be because investors like to invest depending on market moments, and the LIC Mutual fund has the greatest yearly return, which means it has a decent return on investment for investors. The most trusted investors in the market may be to blame.

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Chart of Annual return of all schemes:

Analysis:
From the above Index mutual funds it is analyzed that the TATA mutual fund has the highest funds value i.e 0.0045 and ICICI mutual fund has 0.0044, SBI mutual fund has 0.0044, LIC mutual fund has 0.0044 and IDBI mutual fund has 0.0042.

Interpretation:
From the analysis it can be inferred that the annual return of all the schemes is identified. In the Annual return of the IDBI index mutual fund scheme is very less in the annual return it means the return on investment is very low. TATA index mutual fund has the highest annual return on investment.
VARIANCE:

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<tr>
<td>02</td>
<td>TATA</td>
<td>1.3510</td>
</tr>
<tr>
<td>03</td>
<td>SBI</td>
<td>1.4100</td>
</tr>
<tr>
<td>04</td>
<td>LIC</td>
<td>1.4000</td>
</tr>
<tr>
<td>05</td>
<td>IDBI</td>
<td>1.4100</td>
</tr>
</tbody>
</table>

Chart of Variance of all schemes:

Analysis:
From the above Index mutual funds it is analyzed that the SBI and IDBI Mutual fund has the highest funds value i.e. 1.4100 and LIC has 1.4000, IDBI bank has 1.3980, TATA mutual fund has 1.3510.

Interpretation:
A look at the results of this study suggests that SBI and IDBI banks have the greatest risk while ICICI Bank, TATA Mutual Funds, and Mutual Funds like LIC Mutual Fund have the lowest risk.

STANDARAD DEVIATION:

<table>
<thead>
<tr>
<th>SI NO</th>
<th>FUNDS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ICICI</td>
<td>1.1826</td>
</tr>
<tr>
<td>02</td>
<td>TATA</td>
<td>1.1626</td>
</tr>
<tr>
<td>03</td>
<td>SBI</td>
<td>1.1907</td>
</tr>
<tr>
<td>04</td>
<td>LIC</td>
<td>1.1844</td>
</tr>
<tr>
<td>05</td>
<td>IDBI</td>
<td>1.1904</td>
</tr>
</tbody>
</table>

Chart of standard deviation of all schemes:

Analysis:
From the above Index mutual funds it is an analyzed that the SBI Mutual fund has the highest funds value i.e. 1.1907 and IDBI has 1.1904, LIC bank has 1.1844, ICICI mutual fund 1.1826, and TATA Mutual fund has 1.1626.

**Interpretation:**
From the analysis it is interpreted that SBI has the highest value it means that the funds in the 5 years the risk is more, the TATA index mutual fund the standard deviation is very less than it means that the company has been less risk in the 5 years.

### COVARINCE:

<table>
<thead>
<tr>
<th>SI</th>
<th>FUNDS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ICICI</td>
<td>NIL</td>
</tr>
<tr>
<td>02</td>
<td>TATA</td>
<td>1.3733</td>
</tr>
<tr>
<td>03</td>
<td>SBI</td>
<td>1.4068</td>
</tr>
<tr>
<td>04</td>
<td>LIC</td>
<td>1.3992</td>
</tr>
<tr>
<td>05</td>
<td>IDBI</td>
<td>1.4063</td>
</tr>
</tbody>
</table>

Chart of co-variance of all schemes:

![COVARINCE Chart]

**Analysis:**
From the above Index mutual funds it is an analyzed that the SBI Mutual fund has the highest funds value i.e. 1.14068 and IDBI has 1.4063, SBI bank has 1.3992, and TATA Mutual fund has 1.1626.

**Interpretation:**
From the above analysis it is inferred that SBI, has the highest value which means that this banks have high degree of risk. Whereas IDBI fund, TATA AND LIC Mutual fund have the lowest value which means that these banks have low degree of risks.

### CORRELATION:

<table>
<thead>
<tr>
<th>SI NO</th>
<th>FUNDS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ICICI</td>
<td>NIL</td>
</tr>
<tr>
<td>02</td>
<td>TATA</td>
<td>0.9997</td>
</tr>
<tr>
<td>03</td>
<td>SBI</td>
<td>0.9998</td>
</tr>
<tr>
<td>04</td>
<td>LIC</td>
<td>1.000</td>
</tr>
<tr>
<td>05</td>
<td>IDBI</td>
<td>0.9999</td>
</tr>
</tbody>
</table>

Chart of correlation of all schemes:
Analysis:
From the above Index mutual funds it can be analyzed that the LIC Mutual fund has the highest funds value i.e. 1.000 and IDBI has 0.9999, SBI bank has 0.998, and TATA Mutual fund has 0.9997.

Interpretation:
From the above analysis it is inferred that LIC, has the highest value which means that these banks have high degree of risk and IDBI fund and TATA and SBI Mutual fund have the lowest value which means that these banks have low degree of risks.

BETA:

<table>
<thead>
<tr>
<th>SI NO</th>
<th>FUNDS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ICICI</td>
<td>NIL</td>
</tr>
<tr>
<td>02</td>
<td>TATA</td>
<td>1.0159</td>
</tr>
<tr>
<td>03</td>
<td>SBI</td>
<td>0.9921</td>
</tr>
<tr>
<td>04</td>
<td>LIC</td>
<td>0.9973</td>
</tr>
<tr>
<td>05</td>
<td>IDBI</td>
<td>0.9925</td>
</tr>
</tbody>
</table>

Chart of beta values of all schemes:

Analysis:
From the above Index mutual funds it is analyzed that the TATA Mutual fund has the highest funds value i.e. 1.0159 and LIC has 0.9973, IDBI index mutual fund has 0.9925, and SBI Mutual fund has 0.9921.
Interpretation:
From the above analysis it can be interpreted that TATA index mutual fund has the highest value. It means that in this fund in the last 5 years the risk has been bared more, in the SBI mutual fund the standard deviation is very less it means that the company has bared less risk in the 5 years.

<table>
<thead>
<tr>
<th>SI NO</th>
<th>FUNDS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ICICI</td>
<td>NIL</td>
</tr>
<tr>
<td>02</td>
<td>TATA</td>
<td>0.0044</td>
</tr>
<tr>
<td>03</td>
<td>SBI</td>
<td>0.0044</td>
</tr>
<tr>
<td>04</td>
<td>LIC</td>
<td>0.0044</td>
</tr>
<tr>
<td>05</td>
<td>IDBI</td>
<td>0.0043</td>
</tr>
</tbody>
</table>

Chart of treynor model of all schemes:

Analysis:
From the above Index mutual funds it is an analyzed that the TATA Mutual fund has the highest funds value i.e. 0.0044 and also same value of LIC and SBI has 0.0044, IDBI bank has 0.0043.

Interpretation:
To summarise, this research shows that the fund's excess return for each unit of risk taken was calculated using its performance enlisting. Beta is a measure of how much a company's return fluctuates in reaction to changes in the return of the market as a whole. There are four aggressive mutual funds in the SBI index mutual fund: TATA index mutual fund, SBI index mutual fund, and LIC index mutual fund. IDBI index mutual fund, on the other hand, is less than 0.0043.

SHARPE MODEL:

<table>
<thead>
<tr>
<th>SI NO</th>
<th>FUNDS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ICICI</td>
<td>NIL</td>
</tr>
<tr>
<td>02</td>
<td>TATA</td>
<td>0.0038</td>
</tr>
<tr>
<td>03</td>
<td>SBI</td>
<td>0.0037</td>
</tr>
<tr>
<td>04</td>
<td>LIC</td>
<td>0.0037</td>
</tr>
<tr>
<td>05</td>
<td>IDBI</td>
<td>0.0036</td>
</tr>
</tbody>
</table>

Chart of Sharpe model of all schemes:
Analysis:
From the above Index mutual funds it is analyzed that the TATA Mutual fund has the highest funds value i.e. 0.0038 and LIC and SBI has 0.0037, IDBI bank has 0.0036.

Interpretation:
For investors, the Sharp model teaches them how to understand the return on their capital investments in proportion to their risk, as shown in the previous research. Returns at a greater rate than the safe rate are considered to have a higher “risk-adjusted” ratio. The risk is considerable, but the return on investment is enormous, and the hazard is minimal since they are all above the risk-free rate.

All schemes in a chart:

<table>
<thead>
<tr>
<th>Schemes</th>
<th>ICICI</th>
<th>TATA</th>
<th>SBI</th>
<th>LIC</th>
<th>IDBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average return</td>
<td>0.0529</td>
<td>0.0531</td>
<td>0.0529</td>
<td>0.0532</td>
<td>0.0508</td>
</tr>
<tr>
<td>Annual return</td>
<td>0.0044</td>
<td>0.0045</td>
<td>0.0044</td>
<td>0.0044</td>
<td>0.0042</td>
</tr>
<tr>
<td>Variance</td>
<td>1.398</td>
<td>1.351</td>
<td>1.4100</td>
<td>1.400</td>
<td>1.4100</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.1826</td>
<td>1.1626</td>
<td>1.1907</td>
<td>1.1844</td>
<td>1.1904</td>
</tr>
<tr>
<td>Covariance</td>
<td>1.3723</td>
<td>1.4068</td>
<td>1.3992</td>
<td>1.4063</td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td>0.997</td>
<td>0.998</td>
<td>1.000</td>
<td>0.999</td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>1.0159</td>
<td>0.9921</td>
<td>0.9973</td>
<td>0.9925</td>
<td></td>
</tr>
<tr>
<td>Treynor model</td>
<td>0.0044</td>
<td>0.0044</td>
<td>0.0044</td>
<td>0.0043</td>
<td></td>
</tr>
<tr>
<td>Sharpe model</td>
<td>0.0038</td>
<td>0.0037</td>
<td>0.0037</td>
<td>0.0036</td>
<td></td>
</tr>
</tbody>
</table>

Chart of all schemes:
From the above analysis, on the basis of average return has the LIC fund is the high, IDBI fund as low. On the basis of annual return, TATA fund is high, and on the basis variance has SBI and IDBI fund is high value and TATA fund is very low, and on the basis of Std deviation SBI fund value is high and TATA fund is low. On the basis of Covariance SBI fund has highest value and LIC fund is low. On the basis of Correlation LIC fund is highest value is 1 and TATA fund is low, and on the basis of Beta has TATA fund is highest value is 1.0159 and SBI fund is low value, and On the basis of Treynor model has IDBI fund is very low and others funds values are same, On the basis of Sharpe model is the TATA fund is highest value is 0.0038. And IDBI fund as the lowest value is 0.0036

Findings:

- In the AVERAGE RETURN the value of IDBI index mutual fund scheme is very less, LIC Mutual Fund has the best annual return, indicating that it has a good return on investment, while having a low return on investment.
- In the ANNUAL RETURN the value of IDBI index mutual fund scheme is very less, it means the return on investment is very less. TATA index mutual fund has the highest annual return on investment.
- In the VARIANCE the value of SBI and IDBI index mutual fund scheme has the highest value which means that these banks have high degree of risk and ICICI Bank, TATA and LIC Mutual Fund have the lowest value which means that these banks have low degree of risks.
- In the STANDARD DEVIATION the value of SBI has the highest value it means in the last 5 years the risk is more, in the TATA index mutual fund the standard deviation is very less, that means the company has been under less risk in the last 5 years.
- In the COVARIANCE the value of SBI, has the highest value which means this bank had high degree of risk. Whereas IDBI fund, TATA AND LIC Mutual Fund have the lowest value which means that these banks have low degree of risks.
- In the CORRELATION the value of LIC, has the highest value which means this bank have high degree of risk and IDBI fund and TATA and SBI Mutual Fund have the lowest value which means that these banks have low degree of risks.
- In the BETA that value of TATA index mutual fund has the highest value. It means in the last 5 years the risk has been bared more, in the SBI mutual fund the standard deviation is very less it means that the company has bared less risk in the last 5 years.
- In the TREYNOR MODEL the performance enlisting used to calculate the excess return achieved for each unit of fund return risk incurred. Beta is a measure of how much a company's return fluctuates in reaction to changes in the return of the market as a whole. There are four aggressive mutual funds in the SBI index mutual fund: TATA index mutual fund, SBI index mutual fund, and LIC index mutual fund. IDBI index mutual fund, on the other hand, is less than 0.0043.
- In the SHARP MODEL It demonstrates that the investor knows the relationship between the fund's return on capital investment and the risk it takes on. The ratio is the average return received in excess of the risk-free rate for each unit of total risk. – One scheme's return on investment (ROI) is great, yet the risk is minimal due to the fact that all four are above the risk-free rate.

Suggestions:

- Only the fund's NAV value provides us with a limited amount of information when it comes to investing in any fund plan. Investors would be wise to take Sharpe, Beta, and other similar metrics into account while making investing decisions. No returns on investment are provided by NAV, as it simply provides information on the amount of units that may be returned.
- For investments with a cut-off value and an excess return to beat ratio, TATA, SBI, LIC, and IDBI are advised.
- Equities in TATA, SBI, LIC, and IDBI Mutual Funds are suggested for risk-taking investors because their beta value is smaller than one, indicating that they are defensive stocks.
- TATA mutual funds stocks are advised for individual company investments that provide a good return with minimal risk.
- We don't recommend investing in individual shares of SBI, LIC, or IDBI mutual funds due to their poor returns and significant risks.

Conclusion:
In this study, four of the five index funds were shown to be optimum for a portfolio. Investors may learn which index mutual funds are excellent to invest in and which index mutual funds are not through this research. For the benefit of ordinary investors, this research gives some insights into mutual fund performance in order to aid them in making logical investment choices. The open-ended schemes' monthly NAVs were used as the study's data source. Stock performance estimates and mutual fund fluctuations may both be made easier using the information in this report. To provide a sufficient return on portfolio investment, a cutoff criterion is used to determine long-term fund sales. The excess return to beta ratio is critical for filtering out underperforming firms from a portfolio. Sharpes and Treynor models may be used to evaluate different investment choices and market trends, respectively. Risk-adjusted performance indicators, such as the Sharpe model or the Treynor model, have been used to assess sample mutual fund schemes.