# Project Dissertation Report on

# Performance evaluation of Exchange Traded Funds and Mutual Funds based on BFSI Sector of India


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# CERTIFICATE

This is to certify that **Ms. Tushar Gupta, roll no. 2K18/MBA/008,** a student of **Delhi School of Management** has worked on the project titled **"Performance evaluation of Exchange Traded Funds and Mutual Funds based on BFSI Sector of India"** in partial fulfillment of Master of Business Administration (MBA) program for the academic year 2019-20.

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(Project Guide)

Dr. Rajan Yadav
(Head of Department)

# DECLARATION

I, hereby declare that I have worked on the project titled “Performance evaluation of Exchange Traded Funds and Mutual Funds based on BFSI Sector of India”, in partial fulfillment of the requirement for the Master of Business Administration Program and the report submitted is a record of original dissertation work done by me, under the guidance of Dr. G. C. Maheshwari, Professor, Delhi School of Management, DTU.

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I would like to gratefully acknowledge the commitment of the considerable number of individuals who took dynamic part and offered important help to me over the span of this undertaking.

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I lastly express my gratitude towards the University and the Department for providing me with facilities and environment for the completion of the project.

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# EXECUTIVE SUMMARY

An exchange traded fund is an investment vehicle that reflects the performance of an underlying index by holding the assets like stocks, commodities or bonds to replicate the composition of the market index. Whereas a mutual fund is a type of financial instrument formed using pooled assets gathered from numerous investors to put in capital market securities (stocks and bonds) and money market instruments (T- Bills, commercial papers) and other assets. Mutual funds are managed by fund managers, who attempt to generate regular income or capital gains for the fund's investors

This paper is an experimental study done to see the performance of ETFs that aim to provide returns closely corresponding to Nifty Bank and Nifty PSU Bank Index along with mutual funds that invests in equity of companies in the banking and financial services sector with the benchmark being Nifty Financial Services Index.

The performance of the funds is examined based on the following parameters: active returns, Jensen’s alpha, tracking error and Sharpe ratio.
The active returns analysis showed that ETFs tracking Nifty Bank Index both underperformed and outperformed while ETFs tracking Nifty PSU Bank Index underperformed. Also, all the mutual funds underperformed except SBI Bank and Financial Services Fund.

Jensen’s alpha tend to be negative for majority of the funds both mutual fund and ETFs which means they have been unable to outperform the market. The study reveals SBI ETF Nifty Bank has shown the lowest tracking error among all the ETFs.

Again, the SBI ETF Nifty Bank was rank first based on Sharpe ratio among the ETFs under study and in mutual funds SBI Bank and Financial Services fund was ranked first. Overall active returns analysis shows that the ETF performed better than the mutual funds while the Jensen’s alpha better for the mutual fund than ETF.

The study may be useful for those interested in financial instruments investing in banking and financial sector.

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# CHAPTER 1:
# INTRODUCTION

## A. BANKING AND FINANCIAL SERVICES SECTOR IN INDIA

India has a unique financial sector experiencing quick development, both regarding solid foundation of existing budgetary administrations firms and new entities in the market. The segment involves insurance agencies, business banks, non-banking money related organizations (including NBFCs), co-agents, mutual funds , annuity reserves.

Their services include core banking, retail, private, corporate, investment, credit /debit cards and also stock-broking, payment gateways, mutual funds, insurance covers etc. The banking regulator RBI has allowed new entities such as payments banks to be created recently thereby adding more to the types of entities operating in the sector. However, the monetary zone in India is predominantly a banking region with industrial banks accounting for greater than 64% of the total assets of the financial system.

As per the Reserve Bank of India (RBI), India's banking sector is well- regulated and sufficiently capitalized. The financial and economic conditions in the country are far superior to any other country in the world. Credit, liquidity and market risk studies suggest that Indian banks are generally resilient and have withstood the global downturn well in the past including the great financial crisis.

Indian banking industry has recently witnessed the roll out of new innovative banking models like payments and small finance banks. RBI's new measures may go a long way in helping the restructuring of the domestic banking industry. The digital payments system in India has evolved the most among other countries.

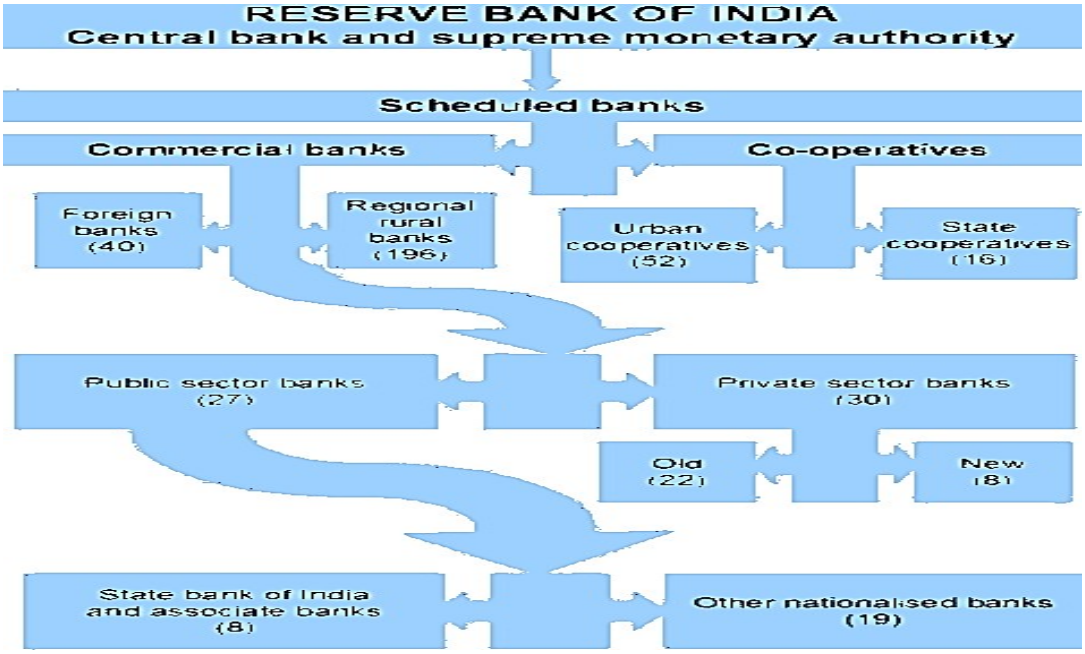
The Indian banking system consists of 27 public sector banks, 21 private sector banks, 49 foreign banks, 56 regional rural banks, 1,562 urban cooperative banks and 94,384 rural cooperative banks, in addition to cooperative credit institutions, which in the recent past have started to face consolidation with governments efforts of recapitalization and fixing the distressed balance sheet of different PSU banks after NPA pressures. In FY07-18, total lending increased at a CAGR of 10.94 per cent and

total deposits increased at a 11 percent CAGR. India is the fifth largest retail credit market in the emerging countries. It has scaled to Dec 2017's 285 billion US$ on from Dec 2014's 185 billion US$.

The Assets Under Management (AUM) in the Mutual Fund (MF) industry has been growing rapidly in India. As of February 2019, Asset Under Management (AUM) of the mutual fund industry was standing at Rs 23.5 trillion (US$ 321.00 billion). The equity portfolios in Mutual Fund reached as high as 74.6 million in the month of June, 2018 at the same time.

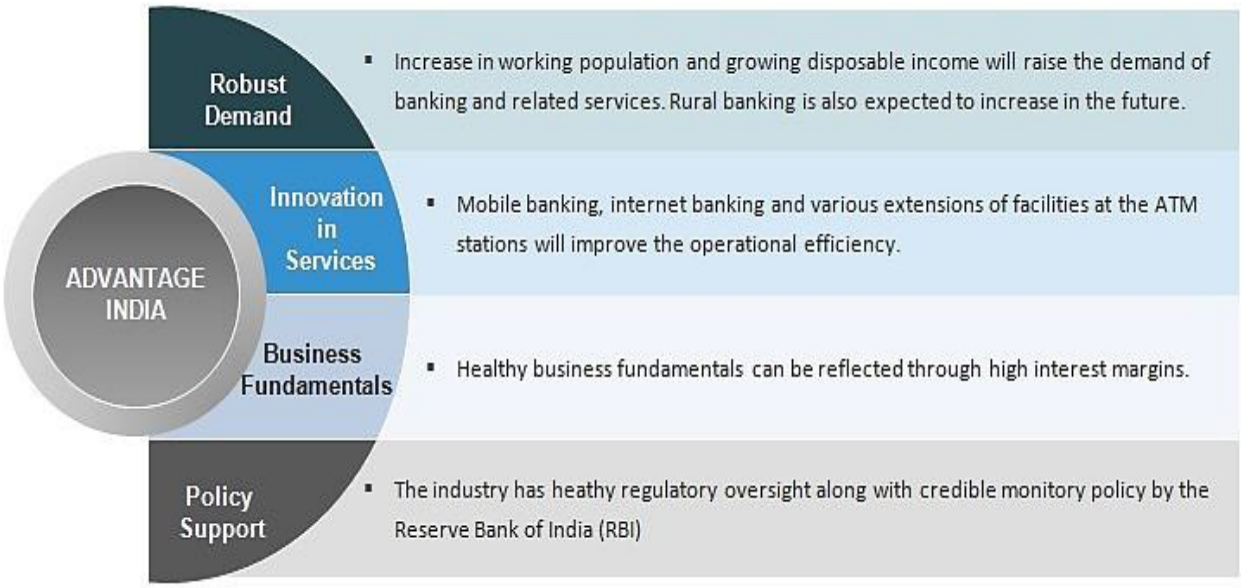
Another cruscial aspect of the financial industry of India is its Insurance industry. Insurance industry has growing at a growing pace in India which currently has a very low penetration considering the large population of the country. The total of 1st years premium of the life insurance providing companies attained Rs 159,000 crore (US$ 22.00 billion) as of January, 2019.

The market for IPOs also saw the secondary market alongside. The gross amount of IPO stood at Rs 14,032 crores / US$ 1.94 bn as of February, 2019.



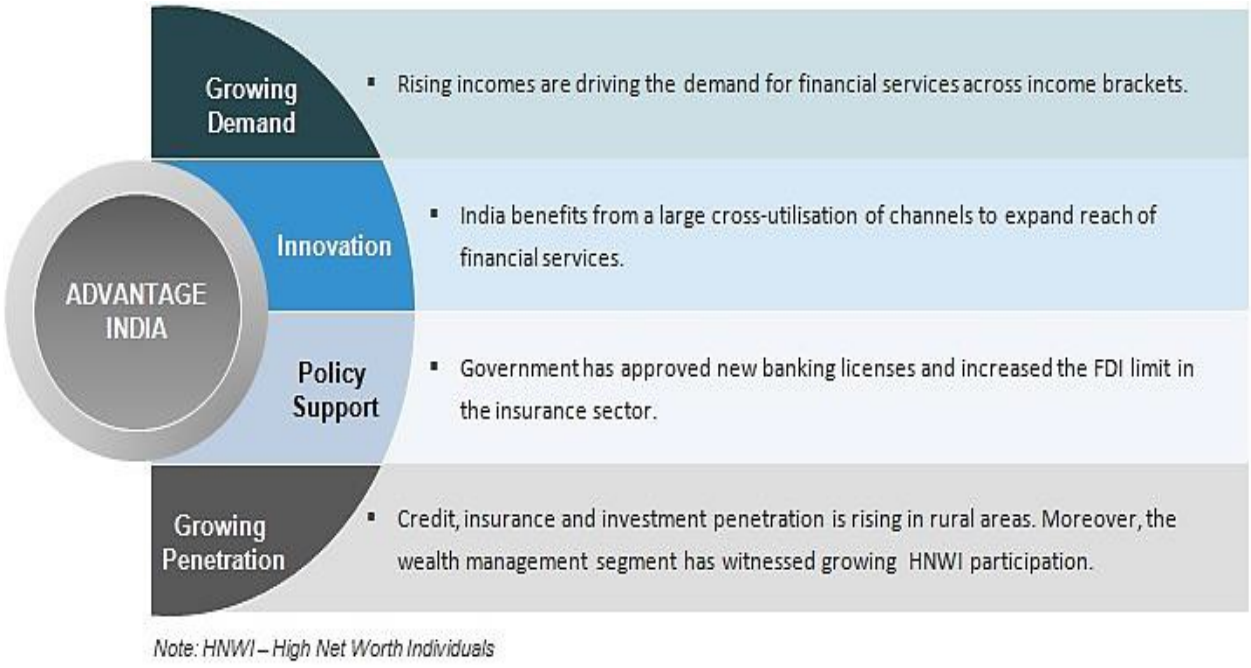

Source: www.wikipedia.com

*Fig1.1: Structure of Organized Banking Sector in India*



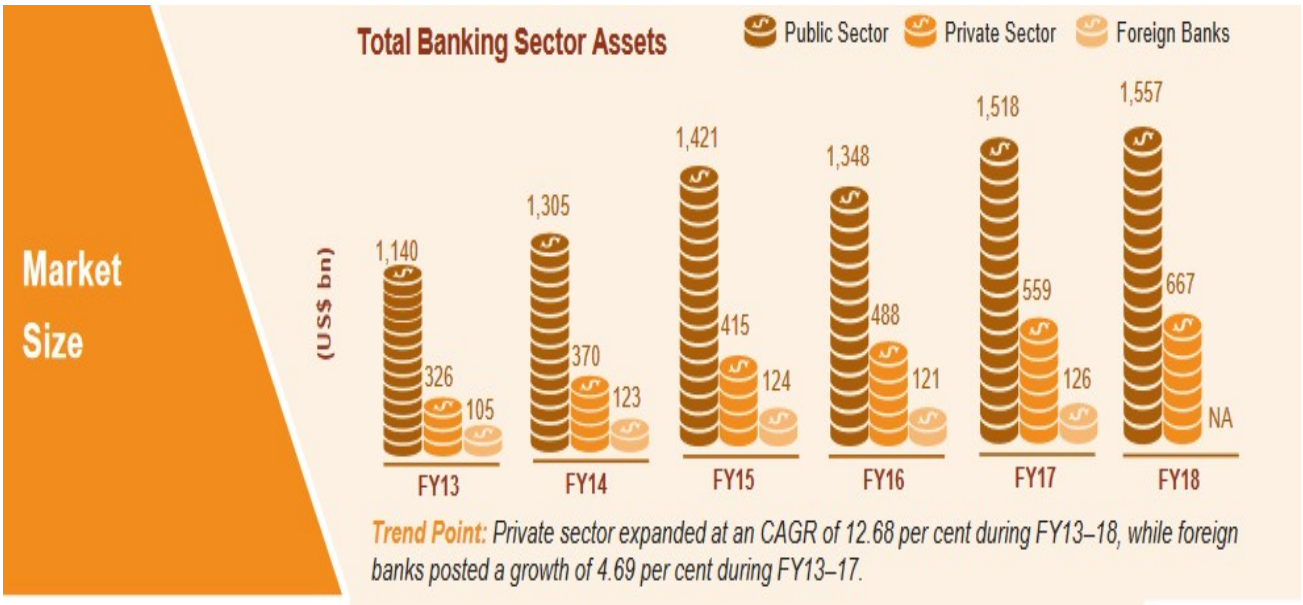

Source: www.ibef.org

*Fig 1.2: Advantages for banking sector in India*




Source: www.ibef.org

*Fig 1.3: Advantages for Financial Services sector in India*




Source: www.ibef.org

*Fig1.4: Market Size of Banking Sector*

## B. MUTUAL FUNDS IN INDIA

### History

The first Mutual Fund in India was launched in 1963, when the Government of India formed Unit Trust of India (UTI). Unit Trust of India enjoyed a monopoly in the mutual fund market up until 1987, when other government-controlled Indian financial companies started launching their own funds starting from State Bank of India, Canara Bank and Punjab National Bank.

The First Phase – 1964 to 1987

UTI was set up with an Act of Parliament in 1963. As it was under the Reserve Bank of India it came under the purview of Regulatory and the authoritative control of the Reserve Bank of India. In 1978, UTI was separated from the RBI and the Industrial Development Bank of India (IDBI) took control over the administrative and regulatory control of the institution in place of the Reserve Bank India. In 1964, UTI came up with

its first scheme called the Unit Scheme 1964. By the end of 1988 UTI had managed to reach around Rs. 6,700 crores of AUM.

The Second Phase – 1987 to 1993 (The Entry of funds in Public Sector)

In 1987, India saw Non-UTI shared resources being impelled by the open region banks and the Life Insurance Corporation of India (LIC) and moreover the General Insurance Corporation of India (GIC). The first non UTI was developed in the extended length of June 1987 by SBI Mutual Fund which was trailed by Canbank Mutual Fund in the time of December 1987, by then the Punjab National Bank Mutual Fund in the time of August 1989, by then followed by the Indian Bank Mutual Fund during November 1989, by then the Bank of India in June 1990 taking everything into account the Bank of Baroda Mutual Fund during October 1992. The Life Insurance Corporation of India developed its own mutual store during the extended length of June 1989, similarly GIC on the other hand set up its own normal hold in Dec 1990. During the completion of year 1993, the normal store industry in India was managing an AUM of Rs. 47,004 crores.

The Third Phase – 1993 to 2003 (The Entry of funds in Private Sector)

As there was entry of private sector funds in 1993, there was a start of new era in the mutual fund industry of India, which gave the investors in India a wider choice of fund to invest in. Then in 1993 it was this year where the first Mutual Fund Regulations came into being, under which all mutual funds, except UTI were to be registered and then governed.

The 1993 SEBI (Mutual Fund) Regulations were substituted by a more comprehensive and revised Mutual Fund Regulations in 1996. The industry now functions under the SEBI (Mutual Fund) Regulations 1996.As at the end of January 2003 there were 33 mutual funds with total assets of Rs. 1, 21,805 crores.

The Fourth Phase - February 2000 onwards

In Feb 2003, after the establishment of the Unit Trust of India Act 1963. It was isolated into two parts. One of which was the Specified Undertaking of the Unit Trust of India with AUM of Rs. 29,835 crore at the culmination of Jan 2003, showing altogether the

upsides of US 64 arrangement, ensured return and various plans. The second being the UTI Mutual Fund, which was support by the SBI, PNB, BOB and LIC of India. After which it got enlisted with SEBI and started working under the Mutual Fund Regulations.


Source:www.amfiindia.com

*Fig 1.5: Growth of Assets over the year*

**Growth of Mutual Funds**

In the previous 10 years, the common store industry of India has seen a developed of 12.5% every year on a normal, which beat the development that was being estimated by the world and a large number of the created locales by more than the twofold, as expressed in a report presented by the Association of Mutual Funds of India (AMFI) and furthermore one of the worldwide investigation firm for example Crisil. During this

period, the Asia-Pacific district which included India, was becoming just at 8%. Resources that were being overseen by the Mutual Funds industry in India grew up to Rs 23.96 trillion by July of 2018, which was up by 17.33% from the earlier year.

The portion of Mutual Funds in the aggregate sum that streamed in the capital market from different portfolio speculations expanded to 18.4% in March of 2018 from 8.5% in the year 2014. On an alternate page, the portion of the outside portfolio financial specialists or FPIs diminished to 56.4% from 61.8% of the market capitalization which occurred at a similar period.

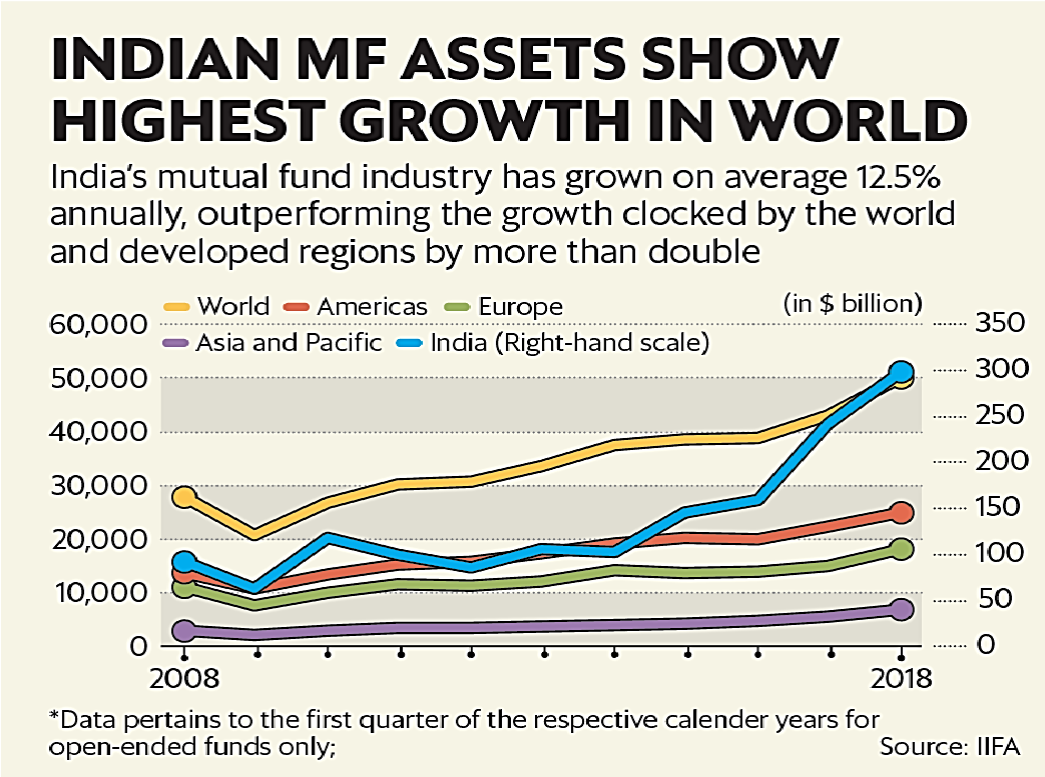



*Fig1.6:Indian Mutual Fund Industry Growth*

Out of the total savings in financial sector and the assets of the country, the total share of Mutual Funds has drastically increased during the last 3 years with increase of 14% in the month of March in 2019 from the 10% increase in 2016. Of the general obligation

market, banks and insurance agencies despite everything proceed to overwhelm and contribute a significant piece of their cash in government securities. The corporate debt market, however, receives its highest share from MFs at 34.9%. Among open-ended funds, 50% of total investment was made in debt funds, followed by 30% in equities and 14% in hybrid funds.

## C. EXCHANGE TRADED FUNDS IN INDIA

The first ETF in India was launched in December 2001 which was benchmarked to the Nifty50. From there on, ETF market in the country saw a strong growth trajectory both in terms of total AUM and number of ETFs. The asset under management (AUM) of domestic equity and debt ETFs has grown at a stellar rate of nearly 28 per vent per annum over the last 11 years.

Global ETF AUM has grown at 19 per cent per annum between 2009–17 crossing $5 trillion recently.

During the recent times, Exchange traded funds (ETFs) have conquered a wider acceptance as a financial instrument with specific benefits over those of mutual funds and has caught the eye of many investors. ETFs are advantageous for Investors who find it hard to become an expert of the tricks of the trade i.e. analyzing and picking stocks that suits their own portfolio. Many MFs provide Exchange traded funds products that try to duplicate the indices on, so that they give returns that as much as possible are similar to the returns on the securities the are represented in the index.

There are ETFs tracking various Indices for e.g.; Sharia Index, Bank Nifty, Liquid BeES Infra Index, and the spot gold. Due to increase in the price of gold on a global platform, and also the return on these gold ETFs, it has been generating significant interest in the investing sector.

The current exponential rise in the ETF market of India is welcoming in the acceptance of the passive style of investing. But, it’s still in the starting phase for the market when compared with other more developed markets like those of Europe and the U.S. As that of November 31 in 2017, globally the ETF market was standing at over USD 4.7 trillion

of AUM with seven thousand products across seventy of the exchanges. These numbers are in the favor of the European and the U.S., which comprises of about 70% and 16% of global ETF markets, respectively. The global ETF issuers that stand at the top three positions are iShares, Vanguard, and State Street.

In India, the current statistics predict assets of around USD 8 billion, with that of 67 products and a YTD growth of over 100%; assets stood at USD 3 billion with the completion of year 2016. The increase can be mostly contributed to the inflows in the CPSE ETF and the Bharat 22 ETF, both being government initiatives. The rise in these assets in Nifty and SENSEX ETFs are also a product of boost being given by the introduction of pension fund investments in ETFs. As seen in India, government has been giving a major contribution to the growth of the ETF space, which in turn helped in promoting the passive investment.

Examples –

- Edelweiss Exchange Traded Scheme - NIFTY
- ICICI Prudential NIFTY ETF
- Kotak NIFTY ETF
- MOSt Shares M50
- Axis Gold ETF

## RESEARCH OBJECTIVES

This paper is not an exhaustive study in the area of investment in the banking and financial services sector. It seeks to fulfill the following objectives –

[1] To study the exhibition of mutual funds based on banking and financial services in India

[2] To study the performance of ETFs tracking Nifty Bank Index and Nifty PSU Bank Index

[3] To compare the performance of Exchange Traded Funds and mutual funds based on the banking and financial services sector of India.

# CHAPTER II:

# LITERATURE REVIEW

## A. RESEARCH PAPERS

This chapter deals with the review of literature on „Investment in Banking and Financial Sector: Performance Evaluation of ETFs and Mutual Funds‟. Review of some of the studies is presented in the following discussion.

ETF vis-À-vis index funds: An evaluation, Prof. Athma Prashanta and Kumar K. Raj (2011). This study covers the trends and progress of Index Funds and ETFs in India and to evaluate the performance of Index Funds vis-à-vis ETFs in India. This study is based on secondary data and covering the span of five years from 2005 to 2009 for the purpose of evaluating performance of selected Index Funds and ETFs in India. It is concluded that ETFs gave better opportunity for the small investors in terms of diversified portfolio with a low expense ratio, small amount of money, lower risk, reduced tracking error,and volatility as compared to Index Funds. The ETFs can prove to be a best investment alternative, provided, awareness is stimulated among the investors.

Prajapati and Patel(2012) in their study analysed the performance of various diversified equity mutual funds in India, for a period of 2007 to 2011 and found that, overall mutual funds has given positive returns and the consistent proformers are Nippon Asset Management (previously Reliance Mutual fund) and HDFC AMC.

Performance of ETFs and Index Funds: a comparative analysis, S. Narend (2014). The paper is a study to analyze the performance of exchange traded funds and index funds since the period of their respective inception till July 2013 in terms of various parameters: a) tracking error b) Jensen's alpha and c) active returns .Overall, the study reveals that, in India, index funds proved to be better than ETFs in terms of a lower tracking error and a greater Jensen’s alpha while ETFs have performed better in terms of active returns.

Performance Evaluation of Some Index Funds-Indian Perspective, Pranav Mishra and Gulab Singh (2016). This paper attempts to make an intra-class performance evaluation of some Indian index funds based on some statistics. The study includes the use of graphical interpretations coupled with statistical tools like R-square and tracking error

values. Two models of tracking error have been employed to test empirically the performance of the selected index funds. The study is useful for those interested in mutual funds, which includes researchers, academicians, and financial advisors. The paper suits the requirement and the situations prevalent in Indian economy during the period under study.

Performance Evaluation of Select Index Funds in India, Pinkesh Dhabolkar, Dipti Anand Naik and Reddy, Y. V (2017). This paper examines the performance of select index mutual funds in India based on tracking error and Jensen's alpha, and rank these funds based on their performance. This study shows that Franklin India index fund has a lower tracking error followed by Birla Sun Life index fund. Rankings using Sharpe and Treynor‟s ratio show that Franklin India index fund and SBI Nifty index fund respectively are the consistent performing funds from the selected group of index funds.

Actively managed ETFs vs. actively managed mutual funds. D. Eli Sherrill and Kate Upton (2017). The purpose of this paper is to study wheather actively managed exchange-traded funds (AMETFs) and actively managed mutual funds (AMMFs) are substitutes or complements. It also analyzes if there are tax or liquidity clientele effects on the overall return of the intrument. The authors find that equity and mixed AMETFs and AMMFs are substitutes, although not perfect substitutes. Taxation-related differences between the two products create a clientele effect for mixed funds and fixed income where tax-sensitive investors are more likely to move from AMETFs to AMMFs as tax increases. There is low evidence that institutional investors may prefer AMETFs more than retail investors because of their enhanced liquidity preferences.

Performance Evaluation of Mutual Funds: A Study of Selected Equity Diversified Mutual Funds In India, Mamta & Satish Chandra Ojha (2017). The main aim of this paper is, to analyze the performance of Indian diversified equity mutual funds. A subsidiary aim is to evaluate the relationship between risk & return of these funds, based on systematic risk and total risk. To summerise, the performance of mutual fund in terms of Average returns, thirty percent of the diversified fund schemes have shown greater and superior returns and remaining have shown below average returns. In terms of standard deviation, ninety percent of the selected funds are less risky than the market as whole. Seven schemes out of ten scheme have beta less than one and positive, which indicates them being comparatively below riskier than current

market portfolio which can be presented in terms of Cefficient of Dtermination (R2), all 10 funds was close to one which showed greater diversification of the portfolio. Only 1 out of the 10 schemes have shown better performance while taking into consideration the Sharpe ratio and 4 out of 10 in case of Treynor Ratio showed greater performance.

Interest in the medicinal services part: MFs or ETFs, Haiwei Chen, James Estes and William Pratt (2018). The fundamental point of this paper is to perceive how human services reserves are not quite the same as social insurance ETFs in the aftereffect of positive alpha, beta, and supporting over a market downturn. The creator considers to see the degree a financial specialist gains by differentiating some measure of their possessions in the S&P 500 file finance into an ETF or worth weighted social insurance conspire. Discoveries were that both social insurance assets and ETFs gave huge positive alpha and support over a market downturn.

## A. EXCHANGE TRADED FUND v/s MUTUAL FUND

It is crucial to consider that ETFs are different than MFs in various areas. Since the study involves the evaluation of performance of exchange traded funds and mutual funds it is necessary to keep in mind the differences between the two.

The following table gives a summary about the differences between the two financial instruments -

| | Exchange Traded Fund | Mutual Fund |
|---|---|---|
| **Managed** | Passively Managed | Actively Managed by the fund manager |
| **Traded** | While the Markets are open | After the Market closes |
| **Goal** | To follow the market index | To beat the market |
| **Management Fee** | No | Yes |
| **Trade Fee** | Yes | Yes |
| **Minimum Investment** | No | Yes |

*Table 2.1: ETF v/s MF*

# CHAPTER III:
# RESEARCH METHODOLOGY

To achieve the objectives of the study mentioned in Chapter I an empirical study is performed. Secondary data is gathered from fund's websites and the stock exchange website (NSE). The funds mentioned in Table 3.1 & 3.2 are evaluated using different statistical measures.

## A. SCOPE OF THE STUDY

The study covers a time of 5 years from Jan 2014 to December 2018. For funds that were launched after 2014, data is collected since inception till December 2018. The report also considers the performance of 4 ETFs that are in operation in India whose benchmark index is the Nifty Bank index of the NSE (National Stock Exchange) and two exchange traded funds tracking Nifty PSU Bank Index. As for the mutual funds seven funds benchmarked to Nifty Financial Services have been taken into account and one benchmarked to Nifty Bank.

The funds under study are mentioned in the following tables –

| **Exchange Traded Fund Tracking Nifty Bank** |
|---|
| Reliance ETF Bank BeES |
| Edelweiss ETF - Nifty Bank |
| Kotak Banking ETF |
| SBI-ETF Nifty Bank |
| **Exchange Traded Fund Tracking Nifty PSU Bank** |
| Kotak PSU Banking ETF |
| Reliance ETF PSU Banking BeES |

*Table 3.1: ETFs under study*

| Mutual Funds |
| --- |
| UTI Bank and Financial Services Fund |
| TATA Bank and Financial Services Fund |
| SBI Bank & Financial Services Fund |
| ICICI Prudential Bank and Financial Services Fund |
| Aditya Birla Sun Life Bank and Financial Services Fund |
| Invesco India Financial Services Fund |
| Sundaram Financial Services Opportunities Fund |
| Reliance Bank Fund |

*Table 3.2: Mutual Funds under study*

## B. SOURCES OF DATA

The study is empirical in nature and is purely based on the secondary data collected.

Daily Net Asset Value (NAV) of the mutual funds was obtained from the websites of the Asset Management Company and Association of Mutual Funds in India (AMFI).

For the same period values of Nifty Bank, Nifty PSU Bank and Nifty Financial Services are obtained from National Stock Exchange website.

Daily returns of the ETFs under study are also calculated using the data collected from the National Stock Exchange website.

Further the yield of 364 days T-bill of Government of India has been used as the risk free return.

## C. MEASURES

To see whether the funds over perform or under perform the benchmark index the following statistical techniques and methods have been used –

For Risk Analysis –

Standard deviation (Total Risk), Beta (Systematic Risk) and Coefficient of Determination were calculated.

For Return Analysis –

Active Returns were calculated for analyzing the returns of the fund. For Performance evaluation by risk adjusted calculations –

Jensen‟s alpha, Sharpe Ratio

Measure Calculation –

1.Absolute return

Absolute returns, also known as point-to-point returns, calculate the simple returns on initial investment. To calculate this return all one needs is the initial and ending NAV (present NAV).

Absolute returns = ((Present NAV – Initial NAV)/ Initial NAV) *100

2.Annualized Return

Annualized return is the amount of money the investment has earned for the investor per annum. CAGR is compounding of returns earned over a period of time. It provides a snapshot of the investment‟s performance but doesn‟t give investors any indication about the volatility. Using annualized return gives a clearer picture when comparing various mutual funds that have traded over different periods of time.

Annualized return = ((1 + Absolute Rate of Return) ^ (1/no. of years)) – 1

3.Standard Deviation

Its significance lays in the fact that sample is free from defects of sampling, it measures the absolute dispersion, the greater the SD; greater will be magnitude of the deviation of the values from their mean. Small SD means high degree of uniformity & homogeneity of a series. The total risk is measured in terms of standard deviation.

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

4.Beta

5.Beta is a fairly commonly used measure of risk. It basically indicates the level of volatility associated with the fund as compared to the benchmark. The success of beta is heavily dependent on the correlation between a fund and its benchmark. If the fund portfolio doesn't have a benchmark index then the beta would be inappropriate. A beta that is larger than one means that scheme is more volatile than the benchmark, while a beta of less than one means that the scheme is less volatile than the index. A fund with a beta very close to 1 means the fund's performance closely matches the benchmark or index.

5.Coefficient of Determination

The $R^2$ is a measure of a security's diversification in relation to the market. $R^2$ gives an idea as to how well a fund's performance correlates with the benchmark. An $R^2$ of 0 means that a fund's returns have no correlation with the market and an $R^2$ of 1.00 indicates that a fund‟s returns are all in sync both up and down of the benchmark.

6.Jensen‟s alpha

Jensen‟s alpha is used to calculate the returns in excess of an amount over its underlying index. The returns in excess of that fund is then regressed over the returns in excess of its underlying index as shown below:

$Rp - Rf = \alpha i + \beta (Rm - Rf) + et$

Where, Rp = the return of an ETF/index fund; Rf = risk-free return; $\alpha i$ = Jensen‟s alpha; $\beta$ = beta of the fund; et = error term.

7.Sharpe Ratio

Sharpe Ratio evaluates how much the fund has performed along the risk taken by it. It is the extra return generated over and above risk-free return (usually taken as the return from T-bills or Government securities currently prevailing in the market) divided by the standard deviation of the returns year over year. The larger the Sharpe Ratio, the better the fund has performed in accordance to the risk taken by it.

The Sharpe Ratio is measured by using the portfolio return and then subtracting the risk-free return, then dividing the whole result (the excess return) by standard deviation of the portfolio returns. That is, it is measuring excess return (over risk-free rate) per unit of risk, also called the market price of risk.

SR = (TOTAL RETURN –RISK FREE RATE) / STANDARD DEVIATION OF THE RETURNS OF THE FUND

$$= (Rp-Rf)/\sigma p$$

8.Tracking Error

Tracking error or active risk is a parameter of the risk in an investment portfolio that arise because of active management calls made by the portfolio manager; it indicates how closely and efficiently a portfolio follows or replicates the index to which it is benchmarked. The best measure is the standard deviation of the difference between the portfolio and index returns, called rolling returns.

# CHAPTER IV:
# ANALYSIS AND DISCUSSION

There's a total of 6 exchange traded funds and eight mutual funds under study as mentioned in the previous chapter. In this chapter characteristics of those funds are defined.

Also the calculations of the measures stated in Chapter III are presented in tables in the following pages of this section.

## A. CHARACTERISTICS OF FUNDS

Factors taken into consideration –

- Underlying Index – Market Index the fund is tracking i.e. mimicking the performance of the index
- Listed on – Stock exchange it is trading on
- Inception Date – Date when the fund was launched
- AUM – Asset under management; total market value of the financial asset
- Expense ratio – the total of the fund percentage in assets that is being used for advertising, administrative expenses, management expenses and other expenses
- Fund Type – open ended or close ended

Following is the table comprising the characteristics of ETFs under study –

| Sno. | ETF | Underlying Index | Listed On | Inception Date | AUM on April 2019 (INR crore) | Expense Ratio (%) |
|---|---|---|---|---|---|---|
| 1 | Reliance ETF Bank BeES | Nifty Bank | NSE | 27-05-2004 | 5,914 | 0.19% |
| 2 | Edelweiss ETF - Nifty Bank | Nifty Bank | NSE | 15-12-2015 | 1 | 0.13% |
| 3 | Kotak Banking ETF | Nifty Bank | NSE | 04-12-2014 | 6,896 | 0.18% |
| 4 | SBI-ETF Nifty Bank | Nifty Bank | NSE | 16-03-2015 | 1,737 | 0.20% |
| 5 | Kotak PSU Bank ETF | Nifty PSU Bank | NSE | 08-11-2007 | 135 | 0.49% |
| 6 | Reliance ETF PSU Bank BeES | Nifty PSU Bank | NSE | 25-10-2007 | 252 | 0.52% |

*Table 4.1: Characteristics of ETF under study*

Following is the table comprising characteristics of mutual fund –

| Sno. | Mutual Fund | Benchmark | Launch Date | AUM on April 2019 (INR Crore) | Expense Ratio(%) | Exit Load | Minimum Investment | Fund Type |
|---|---|---|---|---|---|---|---|---|
| 1 | UTI Banking and Financial Services Fund | Nifty Financial Services | 07-04-2004 | 660 | 2.73% | 1% | 5,000 | Open Ended |
| 2 | TATA Banking and Financial Services Fund | Nifty Financial Services | 28-12-2015 | 284 | 2.74% | 0.25% (within 91 days) | 5,000 | Open Ended |
| 3 | SBI Banking & Financial Services Fund | Nifty Financial Services | 26-02-2015 | 776 | 2.49% | 1% | 5,000 | Open Ended |
| 4 | ICICI Prudential Banking and Financial Services Fund | Nifty Financial Services | 22-08-2008 | 3,068 | 2.16% | 1% (within 15 days) | 5,000 | Open Ended |
| 5 | Aditya Birla Sun Life Banking And Financial Services Fund | Nifty Financial Services | 14-12-2013 | 1,741 | 2.15% | 1% | 1,000 | Open Ended |
| 6 | Invesco India Financial Services Fund | Nifty Financial Services | 14-07-2008 | 140 | 2.65% | 1% | 1,000 | Open Ended |
| 7 | Sundaram Financial Services Opportunities Fund | Nifty Financial Services | 10-06-2008 | 160 | 2.69% | 1% | 5,000 | Open Ended |
| 8 | Reliance Banking Fund | Nifty Bank | 26-05-2003 | 2,991 | 2.20% | 1% | 5,000 | Open Ended |

*Table 4.2: Characteristics of Mutual Fund under study*

## B. DATA CONSOLIDATION

Secondary data was gathered from websites - www.nseindia.com and www.amfiindia.com.

After collecting data for all the mutual funds and exchange traded fund their daily returns were calculated and then their average was taken. The return of the fund and index was taken to calculate the active returns of the fund.

In the following figures a snapshot of the data collected is shown.

F3 =(E3-E2)/E2

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | Date | Open | High | Low | Close | Return |
| 2 | 01-Jan-14 | 11418.9 | 11432.55 | 11361 | 11385.6 | |
| 3 | 02-Jan-14 | 11383.8 | 11578.9 | 11150.2 | 11183.2 | -0.01778 |
| 4 | 03-Jan-14 | 11098.25 | 11208 | 11052.6 | 11181.65 | -0.00014 |
| 5 | 06-Jan-14 | 11174.35 | 11174.35 | 10996.95 | 11049.05 | -0.01186 |
| 6 | 07-Jan-14 | 11097.8 | 11154.1 | 10892.15 | 11036.75 | -0.00111 |
| 7 | 08-Jan-14 | 11071.75 | 11122.75 | 10988.8 | 11053.7 | 0.001536 |
| 8 | 09-Jan-14 | 11068.9 | 11090.25 | 10925.15 | 10970.45 | -0.00753 |
| 9 | 10-Jan-14 | 10969.35 | 11056.9 | 10788.2 | 10805.3 | -0.01505 |
| 10 | 13-Jan-14 | 10814.65 | 11070.2 | 10814.65 | 11021.6 | 0.020018 |
| 11 | 14-Jan-14 | 10989.15 | 11065.65 | 10922.6 | 10948.9 | -0.0066 |
| 12 | 15-Jan-14 | 11000.2 | 11164.1 | 10986.1 | 11125.4 | 0.01612 |
| 13 | 16-Jan-14 | 11187.35 | 11192.8 | 11070 | 11092.55 | -0.00295 |
| 14 | 17-Jan-14 | 11080.1 | 11081.95 | 10893.75 | 10911.35 | -0.01634 |
| 15 | 20-Jan-14 | 10909.9 | 11022.45 | 10876.25 | 11007.5 | 0.008812 |
| 16 | 21-Jan-14 | 11067.05 | 11190.1 | 11036.4 | 11171.5 | 0.014899 |
| 17 | 22-Jan-14 | 11164.25 | 11248.35 | 11094.8 | 11207.35 | 0.003209 |
| 18 | 23-Jan-14 | 11183.75 | 11221.1 | 11122.35 | 11199 | -0.00075 |
| 19 | 24-Jan-14 | 11063.2 | 11132.7 | 10972.1 | 10982.4 | -0.01934 |
| 20 | 27-Jan-14 | 10802.3 | 10802.3 | 10520.9 | 10540.4 | -0.04025 |
| 21 | 28-Jan-14 | 10541.5 | 10708 | 10333.4 | 10507.6 | -0.00311 |
| 22 | 29-Jan-14 | 10609.9 | 10644.2 | 10406.95 | 10437.75 | -0.00665 |
| 23 | 30-Jan-14 | 10287.85 | 10314.25 | 10101.2 | 10153.15 | -0.02727 |
| 24 | 31-Jan-14 | 10193.55 | 10266.45 | 10130.3 | 10237.75 | 0.008332 |
| 25 | 03-Feb-14 | 10205.45 | 10222.65 | 10089.25 | 10102.1 | -0.01325 |

NIFTY Bank_Data

*Fig 4.1: Daily Returns of Nifty Bank*

F3 =(E3-E2)/E2

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | Date | Open | High | Low | Close | returns |
| 2 | 01-Jan-14 | 2562.85 | 2582.6 | 2551.8 | 2573.3 | |
| 3 | 02-Jan-14 | 2577.65 | 2644.3 | 2510.75 | 2521.45 | -0.02015 |
| 4 | 03-Jan-14 | 2496.5 | 2520.4 | 2482.15 | 2515.45 | -0.00238 |
| 5 | 06-Jan-14 | 2515.4 | 2515.4 | 2455.65 | 2468.45 | -0.01868 |
| 6 | 07-Jan-14 | 2474.85 | 2490.55 | 2413.3 | 2427.65 | -0.01653 |
| 7 | 08-Jan-14 | 2436.75 | 2482.8 | 2423.4 | 2460.6 | 0.013573 |
| 8 | 09-Jan-14 | 2459.25 | 2473.55 | 2412.2 | 2421.35 | -0.01595 |
| 9 | 10-Jan-14 | 2423.15 | 2446.35 | 2371.2 | 2379.3 | -0.01737 |
| 10 | 13-Jan-14 | 2385.65 | 2421.15 | 2374 | 2411.25 | 0.013428 |
| 11 | 14-Jan-14 | 2407.6 | 2426.05 | 2391.7 | 2396.85 | -0.00597 |
| 12 | 15-Jan-14 | 2406.15 | 2447.1 | 2405.65 | 2441.95 | 0.018816 |
| 13 | 16-Jan-14 | 2451.65 | 2458.5 | 2428.05 | 2433.1 | -0.00362 |
| 14 | 17-Jan-14 | 2428.9 | 2444.4 | 2387.8 | 2392.6 | -0.01665 |
| 15 | 20-Jan-14 | 2385.2 | 2415.8 | 2376.7 | 2410.25 | 0.007377 |
| 16 | 21-Jan-14 | 2420.25 | 2459.1 | 2418.9 | 2437.9 | 0.011472 |
| 17 | 22-Jan-14 | 2431.4 | 2440.6 | 2409.35 | 2433.25 | -0.00191 |
| 18 | 23-Jan-14 | 2419.75 | 2436.75 | 2416.5 | 2428.7 | -0.00187 |
| 19 | 24-Jan-14 | 2413.1 | 2424.2 | 2344.35 | 2347.45 | -0.03345 |
| 20 | 27-Jan-14 | 2311 | 2311 | 2249.05 | 2257.5 | -0.03832 |
| 21 | 28-Jan-14 | 2264 | 2312.25 | 2229.9 | 2254 | -0.00155 |
| 22 | 29-Jan-14 | 2280.85 | 2289.2 | 2216 | 2218.5 | -0.01575 |
| 23 | 30-Jan-14 | 2185.45 | 2185.45 | 2124.4 | 2127.85 | -0.04086 |
| 24 | 31-Jan-14 | 2143.25 | 2183.85 | 2133.75 | 2176.5 | 0.022863 |
| 25 | 03-Feb-14 | 2173.9 | 2176.9 | 2119.95 | 2122.5 | -0.02481 |

NIFTY PSU Bank_Data

*Fig 4.2: Daily Returns of Nifty PSU Bank index*

F3 =((E3-E2)/E2)*100

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | Date | Open | High | Low | Close | return |
| 2 | 01-Jan-14 | 4758.75 | 4761.8 | 4732.65 | 4737.6 | |
| 3 | 02-Jan-14 | 4734.95 | 4808.4 | 4648.95 | 4665 | -1.53242 |
| 4 | 03-Jan-14 | 4638.2 | 4674.6 | 4621.7 | 4664.1 | -0.01929 |
| 5 | 06-Jan-14 | 4659.75 | 4659.75 | 4604.75 | 4628.35 | -0.76649 |
| 6 | 07-Jan-14 | 4640.55 | 4666.6 | 4570.05 | 4619.25 | -0.19661 |
| 7 | 08-Jan-14 | 4627.7 | 4647.65 | 4608.8 | 4626.35 | 0.153705 |
| 8 | 09-Jan-14 | 4629.8 | 4634 | 4583.15 | 4595.75 | -0.66143 |
| 9 | 10-Jan-14 | 4585.45 | 4622.45 | 4535.25 | 4541.3 | -1.18479 |
| 10 | 13-Jan-14 | 4544.6 | 4651.75 | 4544.6 | 4634.65 | 2.055579 |
| 11 | 14-Jan-14 | 4620.85 | 4657.35 | 4605.9 | 4612.4 | -0.48008 |
| 12 | 15-Jan-14 | 4627.55 | 4703.4 | 4624.25 | 4697.4 | 1.842858 |
| 13 | 16-Jan-14 | 4716.5 | 4722.35 | 4678.9 | 4692.2 | -0.1107 |
| 14 | 17-Jan-14 | 4681 | 4692.25 | 4606.45 | 4612.95 | -1.68897 |
| 15 | 20-Jan-14 | 4619.95 | 4651.1 | 4595.05 | 4631.5 | 0.402129 |
| 16 | 21-Jan-14 | 4652.85 | 4688.85 | 4639.3 | 4684.5 | 1.144338 |
| 17 | 22-Jan-14 | 4683.15 | 4712.45 | 4653.85 | 4696.65 | 0.259366 |
| 18 | 23-Jan-14 | 4682.7 | 4725.6 | 4668.35 | 4714.05 | 0.370477 |
| 19 | 24-Jan-14 | 4662.7 | 4679.5 | 4633.5 | 4639.55 | -1.58038 |
| 20 | 27-Jan-14 | 4573.15 | 4573.15 | 4480.45 | 4489.1 | -3.24277 |
| 21 | 28-Jan-14 | 4487.55 | 4558 | 4435.1 | 4483.9 | -0.11584 |
| 22 | 29-Jan-14 | 4520.95 | 4534.95 | 4450.4 | 4463.8 | -0.44827 |
| 23 | 30-Jan-14 | 4399.75 | 4418.4 | 4349.7 | 4384.35 | -1.77987 |
| 24 | 31-Jan-14 | 4395.45 | 4410.35 | 4358.9 | 4385.65 | 0.029651 |
| 25 | 03-Feb-14 | 4365.1 | 4376.3 | 4309.95 | 4317.3 | -1.55849 |

NIFTY Financial Services_Data

*Fig 4.3: Daily Returns of Nifty Financial Services*

C3 =(A3-A2)/A2

| | A | C | F | G | H | J | K | L | N | O | P | R | S | T | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | aditya birl | Return | | tata | return | | icici | return | | invesco | return | | Reliance | return | | sbi | return |
| 2 | 25.27 | | | 15.9106 | | | 55.35 | | | 54.05 | | | 247.1755 | | | 15.2271 | |
| 3 | 25.06 | -0.00831 | | 15.797 | -0.00714 | | 54.76 | -0.01066 | | 53.35 | -0.01295 | | 244.1154 | -0.01238 | | 15.0107 | -0.01421 |
| 4 | 24.88 | -0.00718 | | 15.4567 | -0.02154 | | 54.39 | -0.00676 | | 52.78 | -0.01068 | | 241.7823 | -0.00956 | | 14.8936 | -0.0078 |
| 5 | 24.37 | -0.0205 | | 15.1866 | -0.01747 | | 52.92 | -0.02703 | | 51.68 | -0.02084 | | 235.666 | -0.0253 | | 14.5531 | -0.02286 |
| 6 | 24.31 | -0.00246 | | 15.1217 | -0.00427 | | 52.71 | -0.00397 | | 51.32 | -0.00697 | | 234.726 | -0.00399 | | 14.5247 | -0.00195 |
| 7 | 24.45 | 0.005759 | | 15.2108 | 0.005892 | | 52.64 | -0.00133 | | 51.51 | 0.003702 | | 234.4477 | -0.00119 | | 14.5967 | 0.004957 |
| 8 | 25.39 | 0.038446 | | 15.6687 | 0.030104 | | 55 | 0.044833 | | 53.69 | 0.042322 | | 245.5083 | 0.047177 | | 15.2106 | 0.042057 |
| 9 | 24.65 | -0.02915 | | 15.3271 | -0.0218 | | 53.35 | -0.03 | | 52.5 | -0.02216 | | 238.8089 | -0.02729 | | 14.8335 | -0.02479 |
| 10 | 25.23 | 0.023529 | | 15.7122 | 0.025125 | | 54.44 | 0.020431 | | 53.79 | 0.024571 | | 244.653 | 0.024472 | | 15.2903 | 0.030795 |
| 11 | 25.21 | -0.00079 | | 15.7353 | 0.00147 | | 54.29 | -0.00276 | | 53.71 | -0.00149 | | 244.0344 | -0.00253 | | 15.3124 | 0.001445 |
| 12 | 25.38 | 0.006743 | | 15.8203 | 0.005402 | | 55.38 | 0.020077 | | 54.22 | 0.009495 | | 248.0089 | 0.016287 | | 15.4314 | 0.007771 |
| 13 | 24.68 | -0.02758 | | 15.5935 | -0.01434 | | 54.15 | -0.02221 | | 52.98 | -0.02287 | | 241.215 | -0.02739 | | 14.9358 | -0.03212 |
| 14 | 24.28 | -0.01621 | | 15.4825 | -0.00712 | | 53.87 | -0.00517 | | 52.53 | -0.00849 | | 238.1949 | -0.01252 | | 14.5503 | -0.02581 |
| 15 | 24.24 | -0.00165 | | 15.3862 | -0.00622 | | 53.68 | -0.00353 | | 52.4 | -0.00247 | | 236.7926 | -0.00589 | | 14.5026 | -0.00328 |
| 16 | 24.1 | -0.00578 | | 15.4227 | 0.002372 | | 53.47 | -0.00391 | | 52.15 | -0.00477 | | 235.4316 | -0.00575 | | 14.5215 | 0.001303 |
| 17 | 24.53 | 0.017842 | | 15.6143 | 0.012423 | | 54.14 | 0.01253 | | 53.16 | 0.019367 | | 238.4673 | 0.012894 | | 14.7702 | 0.017126 |
| 18 | 24.25 | -0.01141 | | 15.4823 | -0.00845 | | 53.54 | -0.01108 | | 52.72 | -0.00828 | | 235.6901 | -0.01165 | | 14.6916 | -0.00532 |
| 19 | 23.98 | -0.01113 | | 15.398 | -0.00544 | | 52.98 | -0.01046 | | 51.74 | -0.01859 | | 231.684 | -0.017 | | 14.4485 | -0.01655 |
| 20 | 24.58 | 0.025021 | | 15.4689 | 0.004604 | | 54.82 | 0.03473 | | 52.59 | 0.016428 | | 240.44 | 0.037793 | | 14.7739 | 0.022521 |
| 21 | 24.44 | -0.0057 | | 15.3446 | -0.00804 | | 54.94 | 0.002189 | | 52.35 | -0.00456 | | 241.2483 | 0.003362 | | 14.7563 | -0.00119 |
| 22 | 24.91 | 0.019231 | | 15.5345 | 0.012376 | | 56.04 | 0.020022 | | 53.28 | 0.017765 | | 245.8941 | 0.019257 | | 15.0637 | 0.020832 |
| 23 | 25.32 | 0.016459 | | 15.6217 | 0.005613 | | 56.46 | 0.007495 | | 53.87 | 0.011074 | | 248.5628 | 0.010853 | | 15.2058 | 0.009433 |
| 24 | 25.61 | 0.011453 | | 15.8418 | 0.014089 | | 56.99 | 0.009387 | | 54.6 | 0.013551 | | 251.1153 | 0.010269 | | 15.4013 | 0.012857 |
| 25 | 25.57 | -0.00156 | | 15.8349 | -0.00044 | | 57.02 | 0.000526 | | 54.39 | -0.00385 | | 251.643 | 0.002101 | | 15.3825 | -0.00122 |

*Fig4.4:Mutual Fund returns*

## C. ANALYSIS OF DATA

Performance under active returns and standard deviation –

The active returns is measured by subtracting the index returns from the fund return. Active returns tell if the fund is outperforming or underperforming.

For calculation of fund risk standard deviation measure is used. High standard deviation means high risk.

| ETF | ETF Risk | ETF Returns Annualized | Index Returns Annualized | Active Returns |
|---|---|---|---|---|
| **ETFs Tracking Nifty Bank** | | | | |
| Reliance ETF Bank BeES | 0.179722 | 0.154505 | 0.155095 | -0.00059 |
| Edelweiss ETF - Nifty Bank | 0.168543 | 0.125253 | 0.240624 | -0.11537 |
| Kotak Banking ETF | 0.179915 | 0.128318 | 0.124127 | 0.004191 |
| SBI-ETF Nifty Bank | 0.168315 | 0.150669 | 0.132241 | 0.018428 |
| **ETFs Tracking Nifty PSU Bank** | | | | |
| Kotak PSU Bank ETF | 0.308332 | 0.059702 | 0.072931 | -0.01323 |
| Reliance ETF PSU Bank BeES | 0.321645 | 0.065337 | 0.072931 | -0.00759 |

*Table 4.3: Active Returns of ETF*

The analysis of Table 4.3 shows that in the case of ETF tracking Nifty Bank Index two out of four have outperformed the benchmark index. And in case of ETFs tracking Nifty PSU Bank Index both the ETFs have inferior returns i.e. they have underperformed.

The highest performance of ETFs in terms of returns were Kotak Banking ETF and SBI- ETF Nifty Bank (they have positive active returns). The rest of the ETFs have not been successful in beating the market. The schemes are Reliance ETF Bank BeES, Edelweiss ETF - Nifty Bank, Kotak PSU Bank ETF and Reliance ETF PSU Bank BeES.

The standard deviation for the ETFs tracking a particular index is around the same showing that they have relatively same amount of risk. Risk of the ETFs tracking Nifty PSU Bank Index is higher than that of Nifty Bank ETF

| Fund | Fund Risk | Fund Returns Annualized | Index Returns Annualized | Active Returns |
|---|---|---|---|---|
| **Benchmark: Nifty Financial Services** | | | | |
| UTI Banking and Financial Services Fund | 0.1544 | 0.1594 | 0.1989 | -0.0395 |
| TATA Banking and Financial Services Fund | 0.1757 | 0.2131 | 0.2338 | -0.02069 |
| SBI Banking & Financial Services Fund | 0.1751 | 0.2362 | 0.2338 | 0.002407 |
| ICICI Prudential Banking and Financial Services Fund | 0.1877 | 0.1805 | 0.1989 | -0.0184 |
| Aditya Birla Sun Life Banking And Financial Services Fund | 0.2128 | 0.1716 | 0.1989 | -0.0273 |
| Invesco India Financial Services Fund | 0.1598 | 0.1578 | 0.1989 | -0.0411 |
| Sundaram Financial Services Opportunities Fund | 0.1668 | 0.1482 | 0.1989 | -0.0507 |
| **Benchmark: Nifty Bank** | | | | |
| Reliance Banking Fund | 0.1804 | 0.1430 | 0.1551 | -0.0121 |

*Table 4.4: Active Returns of Mutual Funds*

Analysis of Table 4.4 reveals that majority of the mutual funds are underperforming i.e. they have negative active returns. Only one mutual fund benchmarked to Nifty Financial Services index has successfully beaten the market with positive active return of 0.002407 and that scheme is SBI Banking & Financial Services Fund.

Other mutual funds have inferior returns and they are; UTI Banking and Financial Services Fund, ICICI Prudential Banking and Financial Services Fund, TATA Banking and Financial Services Fund, Aditya Birla Sun Life Banking And Financial Services Fund , Invesco India Financial Services Fund, Sundaram Financial Services Opportunities Fund and Reliance Banking Fund

Aditya Birla Sun Life Banking And Financial Services has the highest risk among the mutual funds under study with standard deviation being 0.2128.

Performance evaluation in terms of Jensen"s Alpha - Jensen alpha is calculated by considering an equation of - RP- RF = αi+ β (RM- RF) + et

When RP-RF is considered as dependent variable and RM-RF is considered as independent variable. By using this equation regression analysis being performed to figure the alpha, beta and $R^2$

| Fund | Alpha (%) | Beta | $R^2$ |
|---|---|---|---|
| **Exchange Traded Funds** | | | |
| Reliance ETF Bank BeES | -0.6412 | 0.89 | 0.93 |
| Edelweiss ETF - Nifty Bank | -0.8072 | 0.96 | 0.85 |
| Kotak Banking ETF | 0.803 | 0.91 | 0.82 |
| SBI-ETF Nifty Bank | 0.81 | 0.95 | 0.85 |
| Kotak PSU Bank ETF | -1.3 | 1 | 0.91 |
| Reliance ETF PSU Bank BeES | -0.74 | 0.97 | 0.88 |

*Table 4.5: Jensen's alpha of ETFs*

The beta value represents the value of volatility or that of risk of the portfolio. When the beta value is greater than that of 1 it means the fund price will be more volatile than the market price and when beta value is less than 1 it means the fund price is not highly volatile than the index price. The above study provides empirical evidence that almost all beta values of the selected ETFs are less than 1 which means there is less volatility between fund prices and index prices and also indicates that the ETFs moving in similar paths as that of tracking index.

| Fund | Alpha | Beta | R^2 |
|---|---|---|---|
| **Mutual Funds** | | | |
| UTI Banking and Financial Services Fund | -3.29 | 0.95 | 0.82 |
| TATA Banking and Financial Services Fund | -0.802 | 0.87 | 0.91 |
| SBI Banking & Financial Services Fund | 1.7286 | 0.91 | 0.90 |
| ICICI Prudential Banking and Financial Services Fund | -1.8 | 1 | 0.85 |
| Aditya Birla Sun Life Banking And Financial Services Fund | -3.6435 | 1.07 | 0.82 |
| Invesco India Financial Services Fund | -0.2544 | 0.88 | 0.93 |
| Sundaram Financial Services Opportunities Fund | -4.026 | 0.92 | 0.88 |
| Reliance Banking Fund | -0.7765 | 0.95 | 0.85 |

*Table 4.6: Jensen's alpha of Mutual Funds*

All the MFs except SBI Banking and Financial Services Fund has negative alpha indicating that only SBI fund is outperforming the market and other funds have inferior returns.

Majority of the funds have beta less than 1 showing they are less volatile than the market. ICICI Prudential Banking and Financial Services Fund and Aditya Birla Sun Life Banking and Financial Services Fund have beta 1 and 1.07 respectively which means that the former is as equally volatile as the market and the latter is more volatile than the market. In the case of ICICI fund any change in market movement will reflect the change in the fund prices equally whereas in the case of Aditya Birla Fund price movement will be greater with respect to changes in the market.

The high R-squared gives more credibility to the accuracy of the fund's alpha and beta.

Performance in terms of tracking error –

Tracking error is calculated when we take the standard deviation of the differential amount among the benchmark and the returns of an investment. Greater tracking error would mean the funds returns not adjacent to the index returns.

| Fund | Tracking Error |
|---|---|
| **Exchange traded Funds** | |
| Reliance ETF Bank BeES | 0.04% |
| Edelweiss ETF - Nifty Bank | 0.04% |
| Kotak Banking ETF | 0.07% |
| SBI-ETF Nifty Bank | 0.01% |
| Kotak PSU Bank ETF | 0.24% |
| Reliance ETF PSU Bank BeES | 0.10% |

*Table 4.7: ETF tracking error*

When tracking error is low between benchmark return and portfolio return it means that the fund portfolio is following its benchmark closely.

The tracking error of SBI ETF Nifty Bank is far lower than that of other funds which mean returns achieved by SBI ETF Nifty Bank are adjacent to the benchmark returns, where it means manager of a passively managed fund goal is to keep the difference return as low as it is possible.

Tracking error for Kotak PSU Bank ETF is higher than the other fund, indicating existence of greater deviation between Kotak fund and nifty index. When the fund portfolio underperforms the benchmark, the tracking error is greater indicating that fund manager takes higher risk and also have to pay other expenses and costs. Lower tracking error shows good performance of the fund as visible in the case of SBI ETF Nifty Bank.

Performance under of Sharpe Ratio –

The Sharpe Ratio determined the sums abundance return, per unit of its hazard. The proportion shows what sort of relationship is there among the portfolio's additional arrival, over hazard free return and all out danger of the portfolio, which is estimated as far as standard deviation. A positive Sharpe Ratio uncovers a more serious hazard balanced execution of a store while negative and low Shape Ratio shows the ominous exhibition. As a rule, if the determined Sharpe Ratio is predominant than that of benchmark while looking at, the sum's presentation is more noteworthy over the market and the other way around. The following is the consequence of Sharpe Ratios of the common store plots in Table 4.8

| Exchange Traded Fund | Sharpe Ratio |
|---|---|
| Reliance ETF Bank BeES | 0.479099 |
| Edelweiss ETF - Nifty Bank | 0.337319 |
| Kotak Banking ETF | 0.333037 |
| SBI-ETF Nifty Bank | 0.488781 |
| Kotak PSU Bank ETF | -0.02821 |
| Reliance ETF PSU Bank BeES | -0.00952 |

*Table 4.8 Sharpe Ratio of ETF*

In Table 4.9 are the Sharpe ratios calculated for the mutual funds under study.

| Mutual Fund | Sharpe Ratio |
|---|---|
| UTI Banking and Financial Services Fund | 0.589378 |
| TATA Banking and Financial Services Fund | 0.823642 |
| SBI Banking & Financial Services Fund | 0.95831 |
| ICICI Prudential Banking and Financial Services Fund | 0.59723 |
| Aditya Birla Sun Life Banking And Financial Services Fund | 0.484962 |
| Invesco India Financial Services Fund | 0.559449 |
| Sundaram Financial Services Opportunities Fund | 0.478462 |
| Reliance Banking Fund | 0.413525 |

*Table 4.9: Sharpe Ratio of mutual fund*

SBI Banking & Financial Services Fund has the highest Sharpe ratio and thus it can be said that this fund is the top performer.

Whereas Sundaram Financial Services Opportunities Fund and Reliance Banking Fund have the lowest Sharpe ratio and are the lowest performers among the funds under study.

# CHAPTER V:
# FINDINGS

After calculating all the returns, alpha and Sharpe ratio in Chapter IV in this section the funds will be compared based on the different measure values that have been obtained. The values from the previous chapter are tabulated and the performance of the fund is then computed if the fund has outperformed or underperformed.

## A. FINDINGS BASED ON ACTIVE RETURNS –

After tabulating the active returns value obtained in the previous chapter the ETFs are sorted in the order of best performing ETF among the ETFs under study with highest active return to the worst performing ETF with the least active return.

| ETF | Active Returns | Performance |
|---|---|---|
| **SBI-ETF Nifty Bank** | 0.018428 | Outperforming |
| **Kotak Banking ETF** | 0.004191 | Outperforming |
| **Reliance ETF Bank BeES** | -0.00059 | Underperforming |
| **Reliance ETF PSU Bank BeES** | -0.00759 | Underperforming |
| **Kotak PSU Bank ETF** | -0.01323 | Underperforming |
| **Edelweiss ETF - Nifty Bank** | -0.11537 | Underperforming |

*Table 5.1: Active return comparison of ETFs*

Though majority of the ETFs are underperforming SBI ETF Nifty Bank is best performing and Edelweiss ETF Nifty bank is the worst performing among the ETFs under study based on the active returns calculated.

Here the mutual funds under the study are sorted from best performing to worst performing based on the active returns calculated previously and the findings are as follows –

| Fund | Active Returns | Performance |
|---|---|---|
| **SBI Banking & Financial Services Fund** | 0.002407 | Outperforming |
| **Reliance Banking Fund** | -0.0121 | Underperforming |
| **ICICI Prudential Banking and Financial Services Fund** | -0.0184 | Underperforming |
| **TATA Banking and Financial Services Fund** | -0.02069 | Underperforming |
| **Aditya Birla Sun Life Banking And Financial Services Fund** | -0.0273 | Underperforming |
| **UTI Banking and Financial Services Fund** | -0.0395 | Underperforming |
| **Invesco India Financial Services Fund** | -0.0411 | Underperforming |
| **Sundaram Financial Services Opportunities Fund** | -0.0507 | Underperforming |

*Table 5.2: Active returns comparison of mutual funds*

All the mutual funds are underperforming except SBI Banking & Financial Services Fund which has a positive active return and is the best performing fund based on active returns among the funds under study.

Among the mutual funds under consideration Sundaram Financial Services Opportunities Fund is underperforming and the worst performing fund based on active returns.

ETF v/s Mutual Fund –

Active returns analysis reveals that ETFs performed better than the mutual funds under the study.

All the mutual funds are underperforming except one and **exchange traded funds have greater active returns than those of mutual funds**.

B. FINDINGS BASED ON JENSEN'S ALPHA

Jensen's alpha was calculated in the previous chapter using regression analysis and here the funds have been evaluated on those values if they underperformed or outperformed.

Exchange Traded Funds under study are sorted in order of best performer (highest alpha value among the funds) to worst performer (lowest alpha value) based on alpha value.

| Exchange Traded Fund | Jensen's Alpha | Performance |
|---|---|---|
| **SBI-ETF Nifty Bank** | 0.81 | Outperforming |
| **Kotak Banking ETF** | 0.803 | Outperforming |
| **Reliance ETF Bank BeES** | -0.6412 | Underperforming |
| **Reliance ETF PSU Bank BeES** | -0.74 | Underperforming |
| **Edelweiss ETF - Nifty Bank** | -0.8072 | Underperforming |
| **Kotak PSU Bank ETF** | -1.3 | Underperforming |

*Table 5.3: Jensen's alpha comparison of ETFs*

A positive alpha reflects that the scheme is outperforming the market index.

- Best Performer: SBI ETF Nifty Bank (also outperforms the market)
- Worst Performer: Kotak PSU Bank ET

Taking the alpha value of the mutual funds that were calculated before and evaluating the funds based on those values to find the best performer

Mutual Funds under study are sorted in order of best performer to worst performer based on alpha value.

| Mutual Fund | Jensen's Alpha | Performance |
|---|---|---|
| **SBI Banking & Financial Services Fund** | 1.7286 | Outperforming |
| **Invesco India Financial Services Fund** | -0.2544 | Underperforming |
| **Reliance Banking Fund** | -0.7765 | Underperforming |
| **TATA Banking and Financial Services Fund** | -0.802 | Underperforming |
| **ICICI Prudential Banking and Financial Services Fund** | -1.8 | Underperforming |
| **UTI Banking and Financial Services Fund** | -3.29 | Underperforming |
| **Aditya Birla Sun Life Banking And Financial Services Fund** | -3.6435 | Underperforming |
| **Sundaram Financial Services Opportunities Fund** | -4.026 | Underperforming |

*Table 5.4: Jensen's alpha comparison of mutual funds*

- Best performer: SBI Banking & Financial Services Fund (also outperforms the market)
- Worst Performer: Sundaram Financial Services Opportunities Fund

ETF v/s Mutual Fund

Analysis of Table 5.3 & 5.4 reveals that overall mutual funds have better Jensen's alpha than the ETFs under study.

A. FINDINGS BASED ON TRACKING ERROR –

Tracking error shows how much the returns of the ETF deviates from that of the index. A low tracking error means that the deviation is minimal whereas high tracking error means that the returns of the fund and the index are not similar.

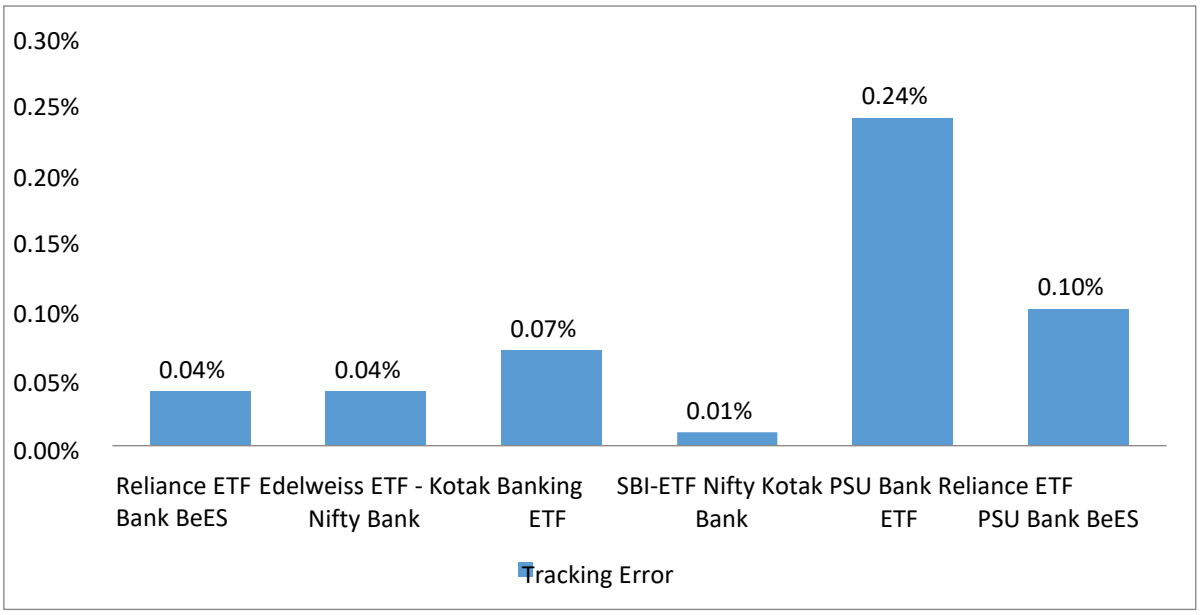



*Fig 5.1: Tracking error comparison of ETF*

- Lowest tracking error – SBI ETF Nifty Bank (returns are adjacent with the benchmark index)

- Highest Tracking error – Kotak PSU Bank ETF (great deviation from the benchmarked index)

B. FINDINGS BASED ON SHARPE RATIO

A high and positive Sharpe Ratio shows a prevalent hazard balanced execution of a reserve while low and negative Shape Ratio means that troublesome presentation.

Exchange Traded Funds under study are ranked according the Sharpe ratio with the highest value having the 1st rank -

| Exchange Traded Fund | Sharpe Ratio | Rank |
|---|---|---|
| Reliance ETF Bank BeES | 0.479099 | 2 |
| Edelweiss ETF - Nifty Bank | 0.337319 | 3 |
| Kotak Banking ETF | 0.333037 | 4 |
| SBI-ETF Nifty Bank | 0.488781 | 1 |
| Kotak PSU Bank ETF | -0.02821 | 6 |
| Reliance ETF PSU Bank BeES | -0.00952 | 5 |

*Table 5.5: Ranking ETF according Sharpe Ratio*

- Best Performer: SBI-ETF Nifty Bank
- Worst Performer: Kotak PSU Bank ETF

The Sharpe ratios of the mutual funds were calculated in the previous chapter, here they are being ranked according to those values.

Mutual Funds under study are ranked according the Sharpe ratio with the highest value having the 1st rank –

| Mutual Fund | Sharpe Ratio | Rank |
|---|---|---|
| UTI Banking and Financial Services Fund | 0.589378 | 4 |
| TATA Banking and Financial Services Fund | 0.823642 | 2 |
| SBI Banking & Financial Services Fund | 0.95831 | 1 |
| ICICI Prudential Banking and Financial Services Fund | 0.59723 | 3 |
| Aditya Birla Sun Life Banking and Financial Services Fund | 0.484962 | 6 |
| Invesco India Financial Services Fund | 0.559449 | 5 |
| Sundaram Financial Services Opportunities Fund | 0.478462 | 7 |
| Reliance Banking Fund | 0.413525 | 8 |

*Table 5.6: Ranking mutual funds based on Sharpe Ratio*

- Best performer: SBI Banking & Financial Services Fund
- Worst Performer: Reliance Banking Fund

This chapter analyzed the values calculated before to sort the funds into best and worst performers and rank them accordingly. At the end of this chapter it can also be concluded that the SBI ETF Nifty Bank and SBI Banking & Financial Services Fund are better performers than the funds in their category.

# CHAPTER VI:
# CONCLUSION

The research has assessed the trade exchanged supports following Nifty Bank Index and Nifty PSU Bank Index and shared finances taking introduction in value and value related instruments of banking and monetary administrations division of India. Outline of examination is shown in various tables. In India, a wide number of trade exchanged assets and common store plans are accessible to general financial specialists. This investigation gives a few bits of knowledge to the general financial specialists attempting to get an introduction in banking division by examining the exhibitions of the trade exchanged assets and common assets so they can settle on discerning speculation choice. For mutual funds, the information utilized in the investigation comprised of day by day NAVs toward the day's end of the reserve and for the trade exchanged store every day close costs of the reserve was thought about. The examination utilized benchmark arrangement of Nifty Bank Index, Nifty PSU Bank Index and Nifty Financial Services depending to the plan objective. The presentation has been assessed as far as return, chance investigation and hazard balanced returns of the common store plans and trade exchanged assets. The presentation estimates utilized were dynamic return, following mistake, Jensen's Alpha and Sharpe proportion. Taking everything into account, the exhibition of shared reserve as far as dynamic returns, one out of eight assets have indicated unrivaled outcome rest all have failed to meet expectations though two out six ETFs have performed better while rest have failed to meet expectations. Six common assets out of eight finances indicated a beta which is short of what one however positive, which suggest that they were nearly less unsafe than the market portfolio and five out of six ETFs appeared to have a beta short of what one. Regarding coefficient of assurance, both common assets and ETFs were close to one which shows hugeness of the alpha and beta worth determined. Outline of investigation is shown in various tables. Following mistake was insignificant for the greater part of the assets. Positioning of the assets is finished utilizing Sharpe proportion. Subsequent to breaking down all the previously mentioned exhibitions measures SBI ETF Nifty Bank was seen as the best entertainer in ETF portion and SBI banking and money related administrations subsidize in shared reserve section.

# CHAPTER VII:
# LIMITATIONS OF THE STUDY

Funds exchanging on National Stock Exchange were thought of and reserves exchanging on Bombay Stock Exchange were not considered. Further, the examination of the research could have been more extensive and increasingly extraordinary if a tremendous and more noteworthy number of trade exchanged assets and common reserve plans were remembered for the investigation. Another impediment of this investigation is that there might be basic breaks in the timespan taken which isn't been considered in this examination. This examination additionally doesn't consider macroeconomic variables like political dangers, swelling and conversion standard which could have emphatically or contrarily affected the general execution for a particular time of the chosen funds.

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