Project Dissertation Report on

Investment in Banking and Financial Services Sector: Performance Evaluation of ETF and Mutual Funds

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CERTIFICATE

This is to certify that **Mr. Vinay Rana, roll no. 2K19/DMBA/111,** a student of **Delhi School of Management** has worked on a project titled **"Investment in Banking and Financial Services Sector: Performance Evaluation of ETF and Mutual Funds"** in partial fulfillment of Master of Business Administration (MBA) program for the academic year 2019-21.

DECLARATION

I, hereby declare that I have worked on a project titled "Investment in Banking and Financial Services Sector: Performance Evaluation of ETFs and Mutual Funds", 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 Mr Chandan Sharma, Assistant Professor, Delhi School of Management, DTU.

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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 made up of a pool of money gathered from numerous investors to put in securities such as stocks, bonds, money market instruments, and other assets. Mutual funds are operated by fund managers, who attempt to produce capital gains or income for the fund's investors.

This paper is an empirical study of the performance of exchange traded funds 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 Banking and Financial Services Fund.

Jensen‟salphaisnegativeformajorityofthefundsbothETFandmutualfundwhichmeansthey have not been able to provide excess return over the market. The study reveals SBI ETF Nifty Bank has the lowest tracking error among 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 Banking 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 financialsect.

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CHAPTER 1: INTRODUCTION
1.1) BACKGROUND

BANKING AND FINANCIAL SERVICES SECTOR IN INDIA

India has a differentiated financial sector experiencing quick development, both regarding solid development of existing budgetary administrations firms and new entities in the market. The segment involves business banks, insurance agencies, non-banking money related organizations, co-agents, annuity reserves, shared assets. The banking regulator has allowed new entities such as payments banks to be created recently thereby adding 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 64percent of the total assets held by the financial system.

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

Indian banking industry has recently witnessed the roll out of 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. In FY07-18, total lending increased at a CAGR of 10.94 per cent and total deposits increased at a CAGR of 11.66 per cent. India‴s retail credit market is the fourth largest in the emerging countries. It increased to US$ 281 billion on December 2017 from US$ 181 billion on December 2014.

AnothercrucialcomponentofIndia‴sfinancialindustryistheinsuranceindustry.Theinsurance industry has been expanding at a fast pace. The total first year premium of life insurance companies reached Rs 159,004 crore (US$ 22.04 billion) as of Jan2019.

Along with the secondary market, the market for Initial Public Offers (IPOs) has also witnessed rapid expansion. The total amount of Initial Public Offerings (IPO) stood at Rs 14,032 crore (US$ 1.94 billion) as of Feb 2019.
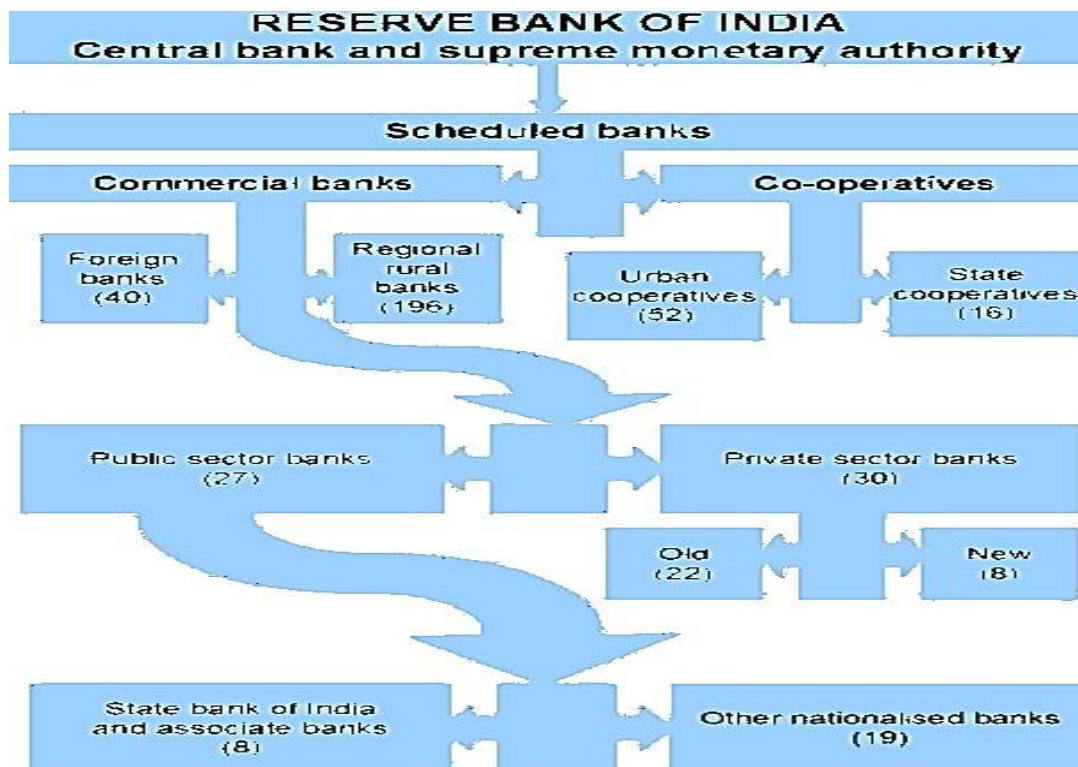
Source: www.wikipedia.com

Fig1.1: Structure of Organized Banking Sector in India
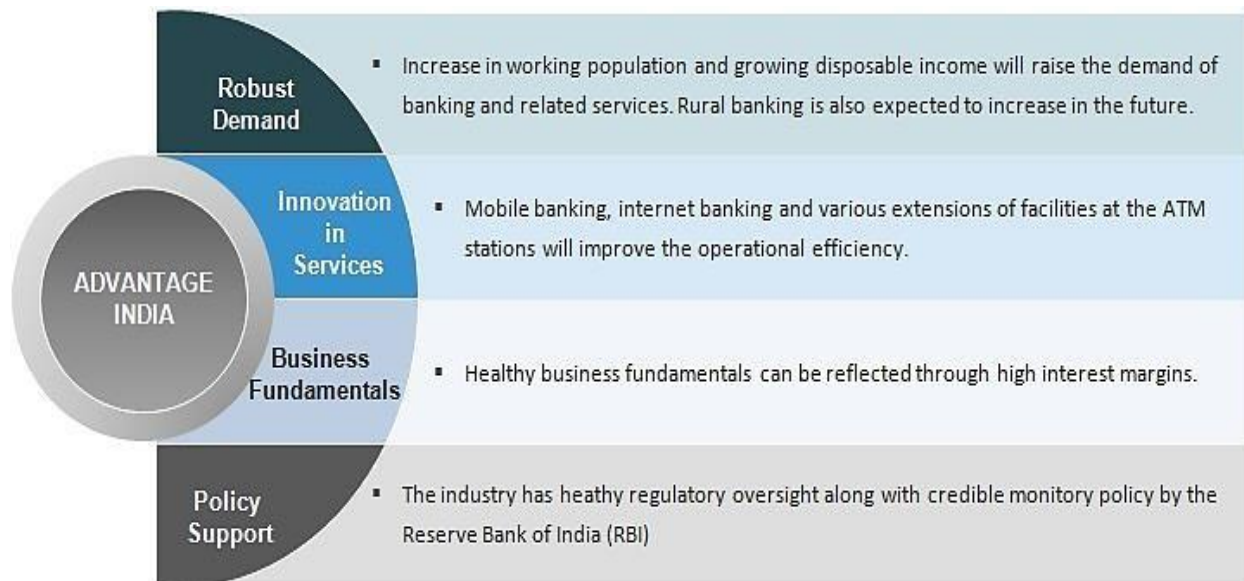
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Fig 1.2: Advantages for banking sector in India
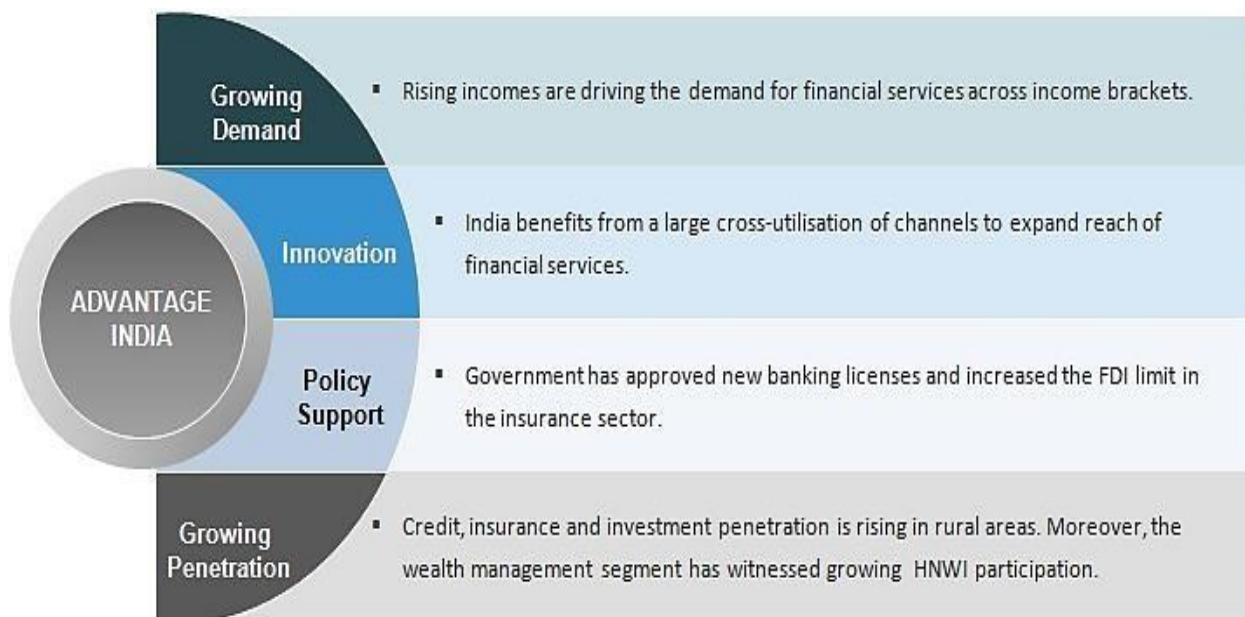
Note: HNWI – High Net Worth Individuals

Source: www.ibef.org

Fig 1.3: Advantages for Financial Services sector in India
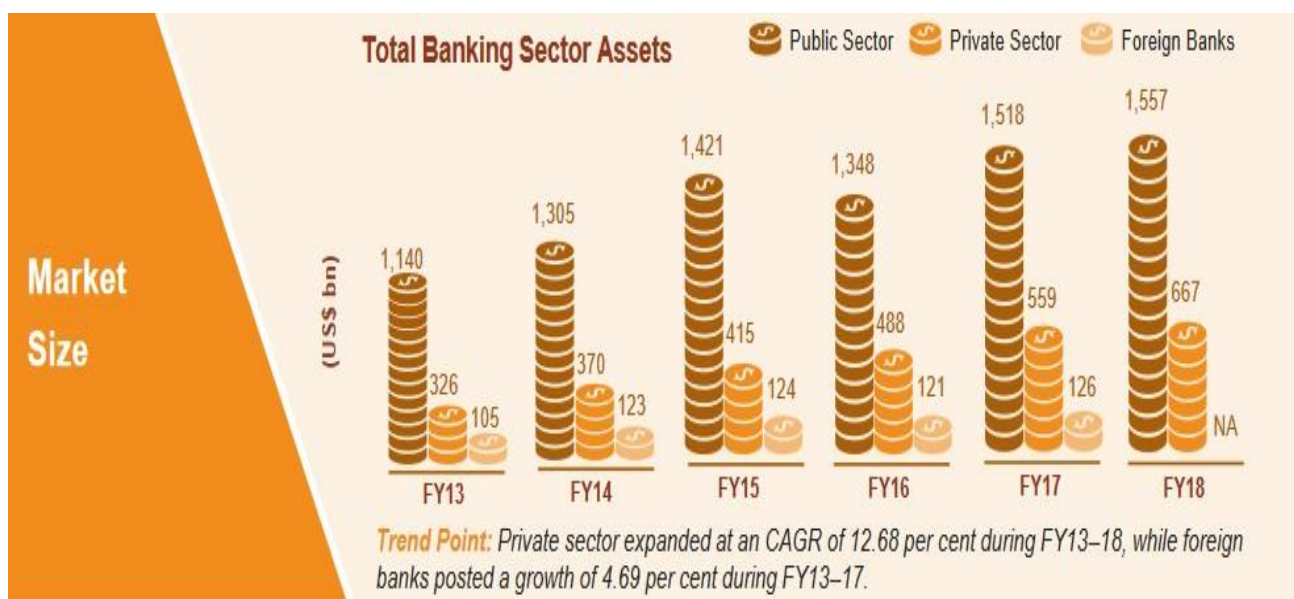
Source: www.ibef.org

Fig1.4: Market Size of Banking Sector

MUTUAL FUNDS IN INDIA
History

The first introduction of a mutual fund in India occurred in 1963, when the Government of Indialaunched Unit Trust of India (UTI).UTI enjoyed a monopoly in the Indian mutual fund marketuntil 1987, when a host of other government-controlled Indian financial companies establishedtheir own funds, including State Bank of India, Canara Bank and by Punjab National Bank.

In February 2003, following the repeal of the Unit Trust of India Act 1963 UTI was bifurcatedinto two separate entities. One is the Specified Undertaking of the Unit Trust of India with assetsunder management of Rs. 29,835 crores as at the end of January 2003, representing broadly, theassets of US 64 scheme, assured return and certain other schemes. The second is the UTI MutualFund, sponsored by SBI, PNB, BOB and LIC. It is registered with SEBI and functions under theMutual Fund Regulations.

Source:www.amfiindia.com
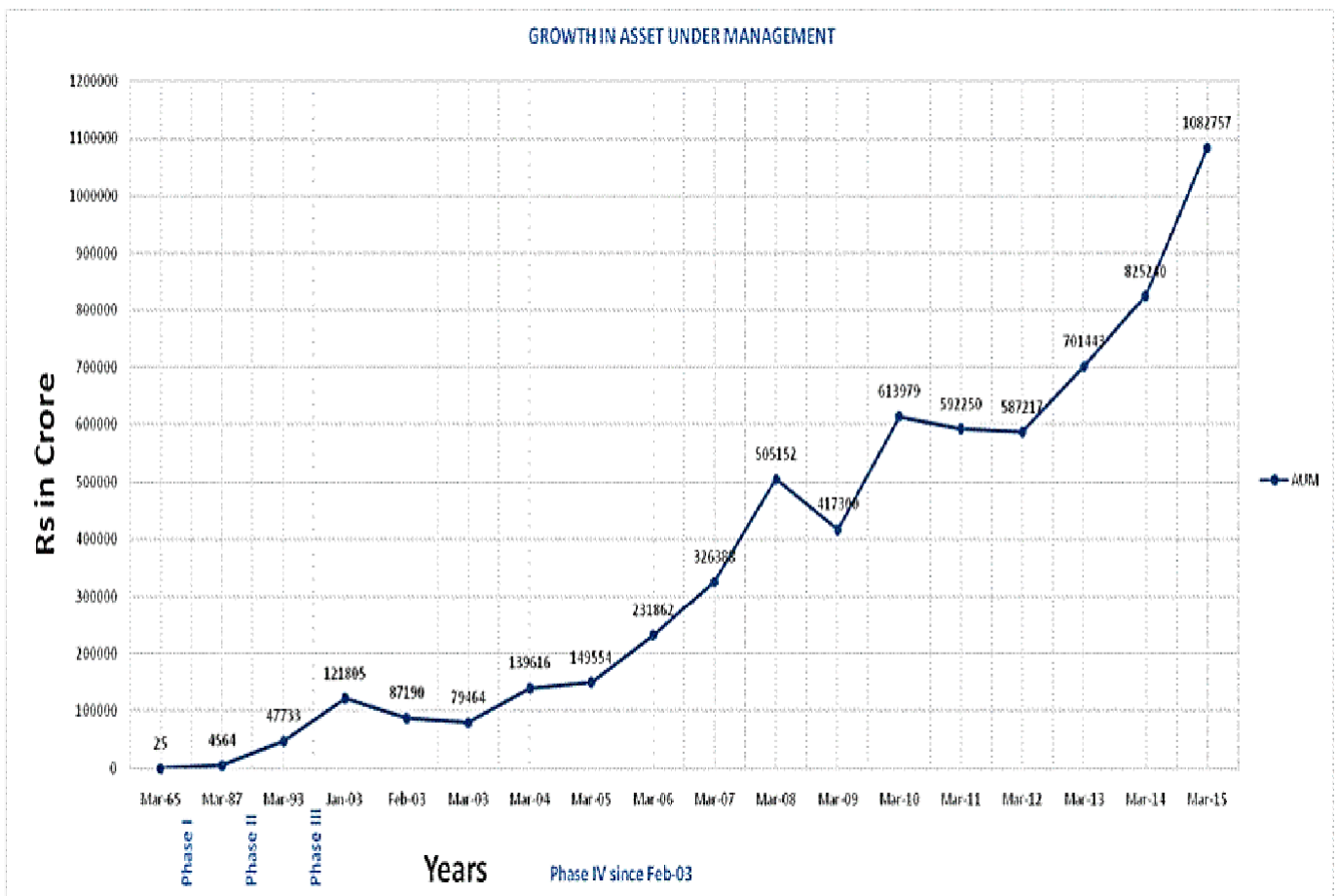
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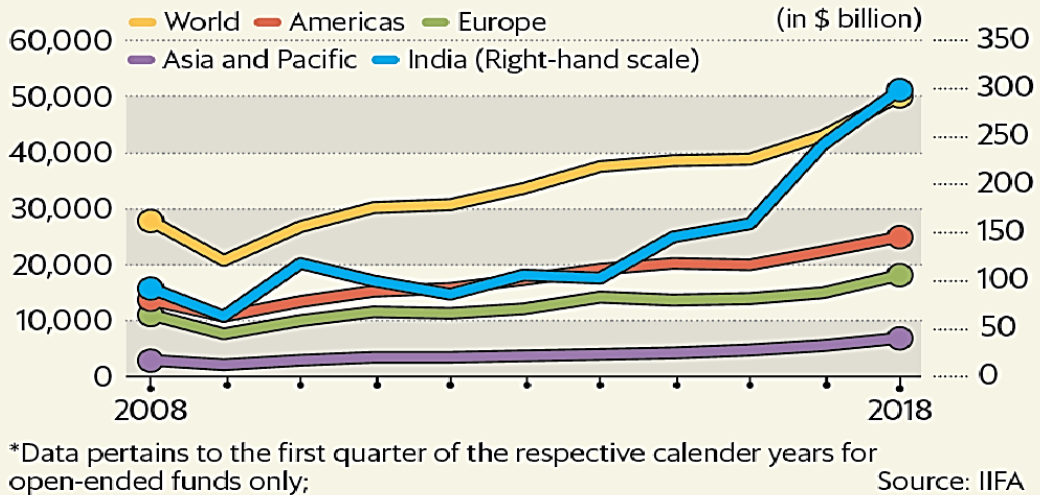
Fig1.6:Indian Mutual Fund Industry Growth

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.

Examples –

- Edelweiss Exchange Traded Scheme -NIFTY
- ICICI Prudential NIFTYETF
- Kotak NIFTYETF
- MOSt SharesM50
- Axis GoldE

1.2) SCOPE OF THESTUDY

The study covers a period of five years starting from Jan 2014 to December 2018. For funds that were launched after 2014, data is collected since inception till December 2018. The paper takes into account the performance of four exchange traded funds operative 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.

1.3) 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 –

- To study the performance of banking and financial services mutual funds in India
- To study the performance of ETF stracking Nifty Bank Index and Nifty PSU Index
- To compare the performance of ETFs and mutual funds in the banking and financial services sector.

CHAPTER II: LITERATURE REVIEW

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.

Prajapati and Patel(2012) in their study evaluated the performance of various diversified equity mutual funds in India, from the period 2007 to 2011 and found that, overall mutual funds has given positive returns and the best performer are HDFC and Reliance mutual fund.

Performance of ETFs and Index Funds: a comparative analysis, S. Narend (2014). This paper is an empirical study of the performance of exchange traded funds and index funds since the period of their respective inception till July 2013 in terms of three parameters: a) tracking error b) active returns and c) Jensen's alpha. Overall, the study reveals that, in India, index funds have done better than ETFs in terms of a lower tracking error and a higher 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.

India based on tracking error and Jensen"s alpha, and rank these funds based on their performance. The study reveals that Franklin India index fund has a lower tracking error followedbyBirlaSunLifeindexfund.RankingusingSharpeandTreynor"sratiorevealthat Franklin India index fund and SBI Nifty index fund respectively are the best performing funds from the selected indexfunds.

Actively managed ETFs vs. actively managed mutual funds. D. Eli Sherrill and Kate Upton (2017). The purpose of this paper is to study if actively managed exchange-traded funds (AMETFs) and actively managed mutual funds (AMMFs) are complements or substitutes. It also tests if there are tax or liquidity clientele effects. 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 fixed income and mixed funds where tax-sensitive investors are more likely to substitute AMETFs for AMMFs surrounding tax increases. There is weak evidence that institutional investors may prefer AMETFs more than retail investors because of their enhanced liquidity.

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 evaluate the performance of Indian equity diversified mutual funds. A subsidiary aim is to analyze the relationship between risk and return of these funds, based on total risk and systematic risk. In nut shell, the performance of mutual fund in terms of Average returns, thirty percent of the diversified fund schemes have shown higher and superior returns and remaining have shown inferior returns. In terms of standard deviation, ninety percent of the selected schemes are less risky than the market. Seven funds out of ten funds have beta less than one and positive, which imply that they were less risky than the market portfolio and in terms of coefficient of determination (R2), all ten funds were near to one which indicates higher diversification of portfolio. One out of ten funds have shown superior performance, under the Sharpe ratio and four out of ten in case of Treynor Ratio have showed higher performance.

Investing in the healthcare sector: mutual funds or ETFs, Haiwei Chen, James Estes and William Pratt (2018). The purpose of this paper is to investigate how healthcare funds differ from healthcare exchange-traded funds (ETFs) in terms of delivering positive alpha, beta, and hedging against a market downturn risk. The author considers what extent can investors gain by diverting a portion of their holdings in the S&P 500 index fund into either a value-weighted healthcare fund portfolio or ETFs. The authors find that both healthcare funds and ETFs provide significantly positive average alpha and hedge against a market downturn risk.

EXCHANGE TRADED FUND v/s MUTUALFUND

It is important to note that exchange traded funds are different from mutual funds in various aspects. Since the study involves the performance evaluation 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	ely 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 mentioned in Chapter I an empirical study is performed. Secondary data is collected from funds websites and the stock exchange website. The funds mentioned in Table 3.1 & 3.2 are evaluated using different statistical measures.

SCOPE OF THE STUDY

The study covers a period of five years starting from Jan 2014 to December 2018. For funds that were launched after 2014, data is collected since inception till December 2018. The paper takes into account the performance of four exchange traded funds operative 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 Bank ETF
Reliance ETF PSU Bank BeES

Table 3.1: ETFs under study

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

Table 3.2: Mutual Funds under study

SOURCES OFDATA

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

Daily NAV of the mutual funds was collected from the websites of the Asset Management Company and Association of Mutual Funds in India.

For the same period values of Nifty Bank, Nifty PSU Bank and Nifty Financial Services are collected 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 day treasury bill of Government of India has been used as the risk free return.

MEASURES

To analyze whether the funds underperform or over perform the benchmark index the following statistical methods and techniques 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 measures– Jensen's alpha, Sharpe Ratio.

Measure Calculation –

Absolute return

Absolute returns, also known as point-to-point returns, are responsible to calculate the simple returns on initial investment.

$$\text{Absolute returns} = ((\text{Present NAV} - \text{Initial NAV})/ \text{Initial NAV}) *100$$

Annualized Return

Annualized return which is the amount of money the investment has earned for the investor per annum.

qCAGR is basically related t0 compounding of returns earned over a period of time. It provides a snapshot oftheinvestment"sperformancebutdoesn"tgiveinvestorsanyindicationabout the volatility. Using annualized return gives a clearer picture when comparing various mutual funds that have traded over different periods oftime.

$$\text{Annualized return} = ((1 + \text{Absolute Rate of Return}) \wedge (1/\text{no. of years})) - 1$$

Standard Deviation

It basically measures the absolute dispersion, the greater the SD; greater will be magnitude of the deviation of the values from their mean.

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

Beta

The success of beta is heavily dependent on the correlation between a fund and its benchmark. If the fund portfolio doesn't have relevant benchmark index then the beta would be inadequate. A beta that is greater than one means that fund is more volatile than the benchmark, while a beta of less than one means that the fund is less volatile than the index. A fund with a beta very close to 1 means the fund's performance closely matches the index or benchmark.

Coefficient of Determination

The R^2 is a measure of a security's diversification in relation to the market. R^2 gives an idea about how well a fund's performance correlates with that of 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 completely in sync-up and down-with the benchmark.

Jensen's alpha

Jensen's alpha was used to measure the excess returns of a fund over that of its underlying index. The excess returns of a fund were regressed against the excess returns of its underlying index as shown below:

$$R_p - R_f = \alpha_i + \beta (R_m - R_f) + e_t$$

Where R_p is the return of an ETF or an index fund;

Sharpe Ratio

Sharpe Ratio measures how well the fund has performed vis-avis the risk taken by it. It is the excess return over risk-free return (usually return from treasury bills or government securities) divided by the standard deviation. The higher the Sharpe Ratio, the better the fund has performed in proportion to the risk taken by it.

The Sharpe Ratio is calculated by taking the return of the portfolio and subtracting the risk-free return, then dividing the result (the excess return) by standard deviation of the portfolio returns. Basically, it is measuring excess return (over risk-free rate) per unit of risk.

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

$= (R_p - R_f)/\sigma_p$

TrackingError

Tracking error or active risk is a measure of the risk in an investment portfolio that is due to active management decisions made by the portfolio manager; it indicates how closely a portfolio follows the index to which it is benchmarked. The best measure is the standard deviation of the difference between the portfolio and index returns.

CHAPTER IV: ANALYSIS AND DISCUSSION

There are total of six 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.

CHARACTERISTICS OFFUNDS

Factors taken into consideration –

- UnderlyingIndex–MarketIndexthefundistrackingi.e.mimickingtheperformanceof the index
- Listed on – Stock exchange it is trading on
- Inception Date – Date when the fund was launched
- AUM–Asset under management;
- Expense ratio - total percentage of fund assets used for administrative, management, advertising, and all 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 April2019 (INR Crore)	Expense Ratio(%)	Exit Load	Minimum Investment	FundType
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 91days)	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 king And Financial Services Fund	Nifty Financial Services	14-12-2013	1,741	2.15%	1%	1,000	Open Ended
6	sco 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

DATA CONSOLIDATION

Secondary data was collected from www.amfiindia.comand www.nseindia.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			f_x	=(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				fx	=(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				fx	=((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		f_x	=(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

ANALYSIS OFDATA

Performance in terms of active returns and standard deviation –

Active returns are calculated 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

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

The top performers in terms of returns were Kotak Banking ETF and SBI- ETF Nifty Bank (they have positive active returns). The rest of the ETFs have been unsuccessful in beating the market. These schemes were 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 ETFs.

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 shows that majority of the mutual funds are underperforming i.e. theyhave 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 ServicesFund.

Other mutual funds have inferior returns and they are; UTI Banking and Financial Services Fund, TATA Banking and Financial Services Fund, ICICI Prudential 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

Where RP-RF is considered as dependent variable and RM-RF is considered as independent variable. By using this equation regression analysis is done to find out 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

A positive alpha represents the outperformance of the fund vice versa negative alpha represents the underperformance.

Majority of funds have negative alpha indicating that they are underperforming and also that the funds are not optimally diversified.

Upon analysis of Table 4.5 it is evident that the Kotak Banking ETF and SBI –ETF Nifty Bank are outperforming the market index they are tracking with alpha 0.803% and 0.81% respectively.

Rest ETFs have negative alpha and are underperforming, they are - Reliance ETF Bank BeES, Edelweiss ETF - Nifty Bank, Kotak PSU Bank ETF and Reliance ETF PSU Bank BeES.

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 mutual funds 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 lends further credibility to the accuracy of the fund's alpha and beta.

Performance in terms of tracking error –

Tracking error is calculated by taking the standard deviation of the difference between the returns of an investment and its benchmark. High tracking error means the funds returns are 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

Performance in terms of Sharpe Ratio –

The results of the Sharpe Ratios of the selected fund schemes have been presented in the Table4.8

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.

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 higher active returns than the mutual funds**.

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 out performed.

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 fund is outperforming the market index.

- Best Performer: SBIETF Nifty Bank(also out performs the market)
- Worst Performer: Kotak PSU Bank ETF

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

<u>ETF v/s Mutual Fund</u>

Analysis of Table5.3 & 5.4 reveals that overall mutual funds have better Jensen‟s alpha than the ETFs understudy.

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.
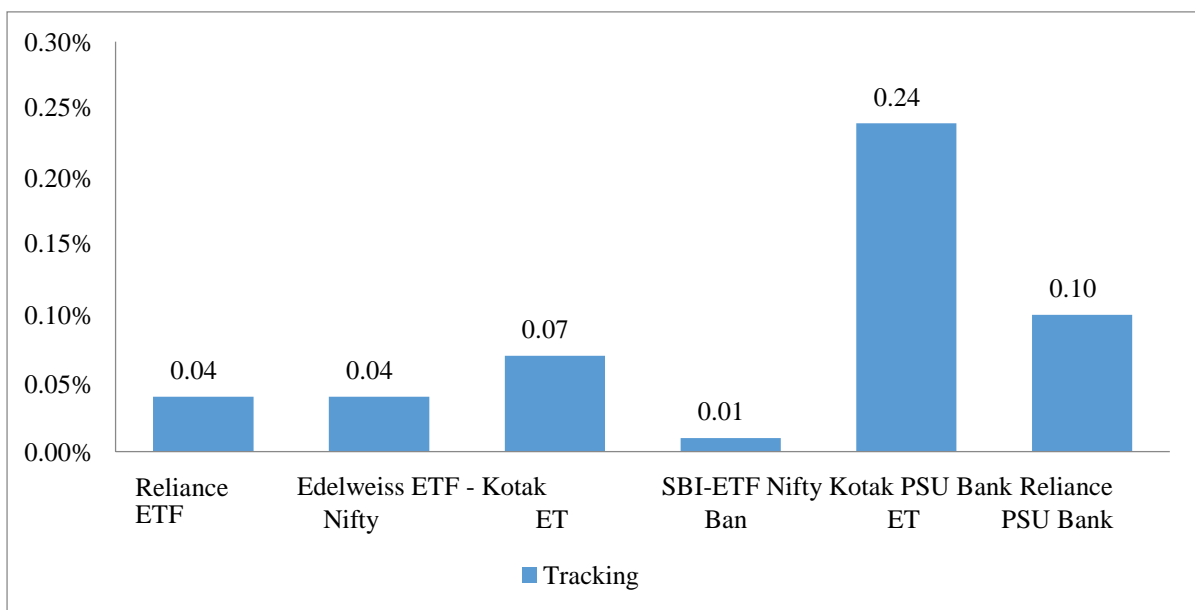

Fig 5.1: Tracking error comparison of ETF

- Lowest tracking error – SBI ETF Nifty Bank (returns are adjacent with the bench mark index)
- HighestTrackingerror–KotakPSUBankETF(greatdeviationfromthebenchmarkedindex)

FINDINGS BASED ON SHARPERATIO

A high and positive Sharpe Ratio shows a superior risk-adjusted performance of a fund while low and negative Shape Ratio is an indication of unfavorable performance.

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 NiftyBank
- Worst Performer: Kotak PSU BankETF

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

CHAPTER VI: CONCLUSION

The study has evaluated the exchange traded funds tracking Nifty Bank Index and Nifty PSU Bank Index and mutual funds investing in equity and equity related instruments of banking and financial services sector. Summary of results is presented in different tables. In India, a number mutual fund schemes and exchange traded funds are available to general investors. This study provides some insights on investing in banking sector by analyzing the performances ofthe exchange traded funds and mutual funds available to the investors for the financial sector so they can make rational investment decision. For mutual funds the data employed in the study consisted of daily NAVs of the fund and for the exchange traded fund daily close prices of the fund was taken into consideration. The study utilized benchmark portfolios of Nifty Bank Index, Nifty PSU Bank Index and Nifty Financial Services according to the scheme objective. The performance of the mutual fund schemes and exchange traded funds has been evaluated in terms of return, risk analysis and risk adjusted returns. The performance measures employed were active return, tracking error, Jensen"s Alpha and Sharpe ratio. In conclusion, the performance of mutual fund in terms of active returns, one out of eight funds has shown superior result rest all have underperformed whereas two out six ETFs have outperformed while rest have underperformed . Six mutual funds out of eight funds have beta less than one and positive, which imply that they were less risky than the market portfolio and five out of six ETFs have beta less than one. In terms of coefficient of determination, both ETFs and mutual funds were near to one which indicates significance of the alpha and beta value calculated. Tracking error was minimal for most of the funds. Ranking of the funds is done using Sharpe ratio. After analyzing all the above mentioned performances measures SBI ETF Nifty Bank was found to be the best performer in ETF segment and SBI banking & financial services fund in mutual fund segment.

CHAPTER VII: LIMITATIONS OF THE STUDY

Funds trading on National Stock Exchange were considered and funds trading on Bombay Stock Exchange were not taken into account. Further, the results of this study could have been different if more number of mutual fund schemes and exchange traded funds were available that could have been included for analysis. The other limitation of this study is that there may be structural breaks in the time period and this has not been considered in the study. The study also has not considered macroeconomic factors like exchange rate, inflation and political risks which could have impacted the performance of the funds.

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