Project Dissertation

‘A comparative study of performance of debt and equity mutual fund taking SBI mutual funds as reference’

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CERTIFICATE FROM THE INSTITUTE

This is to certify that the Project Dissertation titled **A comparative study of performance of debt and equity mutual fund taking SBI mutual funds as reference**, is a bonafide work carried out by **Mr. Kshitiz Tiwari** of MBA 2015-17 and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfillment of the requirement for the award of the Degree of Masters of Business Administration.

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DECLARATION

I, **Kshitiz Tiwari**, student of MBA 2015-17 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 declare that project dissertation Report on **A comparative study of performance of debt and equity mutual fund taking SBI mutual funds as reference**, submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This Report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship

Kshitiz Tiwari

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EXECUTIVE SUMMARY

The dissertation aims to compare two types of mutual funds and their performance over a period of 10 years. Both Equity and debt mutual funds are highly favorable financial instruments nowadays. Both types of mutual funds have their own properties.

Also to investors it has been a major point of dilemma that in which instrument it will be better to invest to reduce the risk and maximize gains. Debt mutual funds and equity mutual funds have very different characteristics and mostly investors invest in a certain combination of these two, but in the end investor invest money to gain on investment. In this dissertation it has been tried to compare these two types of financial instruments on various parameters.

Both the mutual funds has been chosen is of SBI, to give the comparison a more equal level platform. Also one of the major reason of choosing SBI is that both the funds under the research is at least more than a decade old and we can have 10 years annual data.

Both the funds are compared mainly on 5 parameters namely Standard deviation, Beta, Alpha, R-Square Tobin's Q Ratio and Sharpe ratio. All the parameters provide a different aspect of both the funds and how it has been performing on that particular aspect.

The final result in summary is that while equity mutual funds performed better in return performance parameters while equity mutual fund has performed better in risk aversion parameters which are on expected grounds.

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CHAPTER-1: INTRODUCTION

1.1 Introduction of the project

1.1.1 History of Mutual funds in India

The mutual fund industry in India started in 1963 with the formation of Unit Trust of India, at the initiative of the Government of India and Reserve Bank of India. The history of mutual funds in India can be broadly divided into four distinct phases

First Phase - 1964-1987

Unit Trust of India (UTI) was established in 1963 by an Act of Parliament. It was set up by the Reserve Bank of India and functioned under the Regulatory and administrative control of the Reserve Bank of India. In 1978 UTI was de-linked from the RBI and the Industrial Development Bank of India (IDBI) took over the regulatory and administrative control in place of RBI. The first scheme launched by UTI was Unit Scheme 1964. At the end of 1988 UTI had Rs. 6,700 crores of assets under management.

Second Phase - 1987-1993 (Entry of Public Sector Funds)

1987 marked the entry of non-UTI, public sector mutual funds set up by public sector banks and Life Insurance Corporation of India (LIC) and General Insurance Corporation of India (GIC). SBI Mutual Fund was the first non-UTI Mutual Fund established in June 1987 followed by Canbank Mutual Fund (Dec 87), Punjab National Bank Mutual Fund (Aug 89), Indian Bank Mutual Fund (Nov 89), Bank of India (Jun 90), Bank of Baroda Mutual Fund (Oct 92). LIC established its mutual fund in June 1989 while GIC had set up its mutual fund in December 1990.
At the end of 1993, the mutual fund industry had assets under management of Rs. 47,004 crores.

Third Phase - 1993-2003 (Entry of Private Sector Funds)

With the entry of private sector funds in 1993, a new era started in the Indian mutual fund industry, giving the Indian investors a wider choice of fund families. Also, 1993 was the year in which the first Mutual Fund Regulations came into being, under which all mutual funds, except UTI were to be registered and governed. The erstwhile Kothari Pioneer (now merged with Franklin Templeton) was the first private sector mutual fund registered in July 1993.

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.

The number of mutual fund houses went on increasing, with many foreign mutual funds setting up funds in India and also the industry has witnessed several mergers and acquisitions. As at the end of January 2003, there were 33 mutual funds with total assets of Rs. 1,21,805 crores. The Unit Trust of India with Rs. 44,541 crores of assets under management was way ahead of other mutual funds.

Fourth Phase - since February 2003

In February 2003, following the repeal of the Unit Trust of India Act 1963 UTI was bifurcated into two separate entities. One is the Specified Undertaking of the Unit Trust of India with assets under management of Rs. 29,835 crores as at the end of January 2003, representing broadly, the assets of US 64 scheme, assured return and certain other schemes. The Specified Undertaking of Unit Trust of India, functioning under an administrator and under the rules framed by Government of India and does not come under the purview of the Mutual Fund Regulations.

The second is the UTI Mutual Fund, sponsored by SBI, PNB, BOB and LIC. It is registered with SEBI and functions under the Mutual Fund Regulations. With the bifurcation of the erstwhile UTI which had in March 2000 more than Rs. 76,000 crores of assets under management and with the setting up of a UTI Mutual Fund, conforming to the SEBI Mutual Fund Regulations, and with recent mergers taking place among different private sector funds, the mutual fund industry has entered its current phase of consolidation and growth. (1)

1.1.2 Mutual fund industry in India

The Indian mutual fund industry has a rapid growth as infrastructure development, Increase in personal financial assets, and rise in foreign participation. The industry sustain with growing risk appetite ,rising income and growing awareness , Mutual fund in India is becoming a preferred investment option compared to other investment vehicles like Fixed deposits and Saving accounts that give low return as compared to mutual funds.

The Indian mutual fund industry is one of the fastest growing industries in India's Financial and capital market. There has been a substantial improvement in the product line in terms of quality and quantity as well as service offering in recent years. Between year 1997 and June 2003 AUM (Asset under management) in mutual funds grew by 96% and as a result it rose from 8% of GDP to 15% of GDP. The industry ha sgrown in size and total asset is $30351 million. Private sector account for nearly 91% of the resources mobilized showing their dominance in the market. Individual investor contribute to the 98% of the total number of investors and contribute total of $12062 million, which is 55.16 of the net asset under management.

1.1.3 Classification of mutual funds in India

1. **Open ended fund:** An open-end fund is a type of mutual fund that does not have restrictions on the amount of shares the fund can issue. The majority of mutual funds are open-end, providing investors with a useful and convenient investing vehicle. When a fund's investment manager(s) determine that a fund's total assets have become too large to effectively execute its stated objective, the fund will be closed to new investor, and in extreme cases, will be closed to new investment by existing fund investors.

2. **Closed-end funds:** A closed-end fund is organized as a publicly traded investment company by the Securities and Exchange Commission (SEC). Like a mutual fund, a closed-end fund is a pooled investment fund with a manager overseeing the portfolio; it raises a fixed amount of capital through an initial public offering (IPO). The fund is then structured, listed and traded like a stock on a stock exchange.

3. **Interval funds:** A non-traditional type of closed-end mutual fund that periodically offers to buy back a percentage of outstanding shares from shareholders Shareholders are not required to sell their shares back to the fund.

4. **Growth funds:** A growth fund is a diversified portfolio of stocks that has capital appreciation as its primary goal, with little or no dividend payouts. The portfolio mainly consists of companies with above-average growth that reinvest their earnings into expansion, acquisitions and/or research and development.

5. **Income Funds:** Income funds are mutual funds, ETFs or any other type of fund that seek to generate an income stream for shareholders by investing in securities that offer dividends or interest payments. The funds can hold bonds, preferred stock, common stock or even real estate investment trusts (REITs).

6. **Balanced Funds:** Balanced funds are geared toward investors who are looking for a mixture of safety, income and modest capital appreciation. The amounts this type of mutual fund invests into each asset class usually must remain within a set minimum and maximum.

7. **Money market funds:** A money market fund (also called a money market mutual fund) is an open-ended mutual fund that invests in short-term debt securities such as US Treasury bills and commercial paper. Money market funds are widely (though not necessarily accurately) regarded as being as safe as bank deposits yet providing a higher yield.

8. **Tax Saving schemes:** This scheme or equity linked saving schemes offer tax rebates to investors under section 88 of income tax act of India.

9. **Sector mutual funds:** A sector fund is a mutual fund that invests in a specific sector of the economy, such as energy or utilities. These funds invest in oil and gas and other energy sources, as well as timber and forestry. These funds are usually appropriate for long-term growth investors.

10. **Index Funds:** An index fund is a type of mutual fund with a portfolio constructed to match or track the components of a market index, such as the HDFC Index Fund-Nifty(G) .An index mutual fund is said to provide broad market exposure, low operating expenses and low portfolio turnover.

1.1.4 Understanding Debt and Equity mutual funds in detail

Debt mutual funds: There are different types of Mutual Funds that invest in various securities, depending on their investment strategy.

Debt Mutual Funds mainly invest in a mix of debt or fixed income securities such as Treasury Bills, Government Securities, Corporate Bonds, Money Market instruments and other debt securities of different time horizons. Generally, debt securities have a fixed maturity date & pay a fixed rate of interest.

The returns of a debt mutual fund comprises of –
Interest income

- Capital appreciation / depreciation in the value of the security due to changes in market dynamics

Debt securities are also assigned a '**credit rating**', which helps assess the ability of the issuer of the securities / bonds to pay back their debt, over a certain period of time. These ratings are issued by independent rating organizations such as CARE, CRISIL, FITCH, Brickwork and ICRA. Ratings are one amongst various criteria used

by Fund houses to evaluate the credit worthiness of issuers of fixed income securities.

Various types of Debt mutual funds:

There are different types of Debt Mutual Funds that invest in various fixed income securities of different time horizons. Some of the debt based & blended category products (which have both debt and equity allocation) are as follows -

Liquid Funds / Money Market Funds

These funds invest in highly liquid money market instruments and provide easy liquidity. The period of investment in these funds could be as short as a day. They aim to earn money market rates and could serve as an alternative to corporate and individual investors, for parking their surplus cash for short periods. Returns on these funds tend to fluctuate less when compared with other funds.

Ultra Short Term Funds

Earlier known as **Liquid Plus Funds**, they invest in very short term debt securities with a small portion in longer term debt securities. Most ultra-short term funds do not invest in securities with a residual maturity of more than 1 year. Also referred to as Cash or Treasury Management Funds, **Ultra Short Term Funds** are preferred by investors who are willing to marginally increase their risk with an aim to earn commensurate returns. Investors who have short term surplus for a time period of approximately 1 to 9 months should consider these funds.

Floating Rate Funds

These funds primarily invest in floating rate debt securities, where the interest paid changes in line with the changing interest rate scenario in the debt markets. The periodic interest rate of the securities held by these products is reset with reference to a market benchmark. This makes these funds suitable for investments when interest rates in the markets are increasing.

Short Term & Medium Term Income Funds

These funds invest predominantly in debt securities with a maturity of up to 3 years in comparison to a Regular Income Fund. These funds tend to have a average maturity that is longer than Liquid and Ultra Short Term Funds but shorter than pure Income Funds. These funds tend to perform when short term interest rates are high and could potentially benefit from capital gains as liquidity comes back to the market and interest rates go down. These funds are suitable for conservative investors who have low to moderate risk taking appetite and an investment horizon of 9 to 12 months.

Income Funds, Gilt Funds and other dynamically managed debt funds

These funds comprise of investments made in a basket of debt instruments of various maturities & issuers. These funds are suitable for investors who willing to take a relatively higher risk as compared to corporate bond funds,and have longer investment horizon. These funds tend to work when entry and exit are timed properly; investors can consider entering these funds when interest rates have moved up significantly to benefit from higher accrual and when the outlook is that interest rates would decrease. As interest rates go down, investors can potentially benefit from capital gains as well. A few types of dynamically managed debt funds are mentioned below -

Income funds invest in corporate bonds, government bonds and money market instruments. However, they are highly vulnerable to the changes in interest rates and are suitable for investors who have a long term investment horizon and higher risk taking ability. Entry and exit from these funds needs to be timed appropriately. The correct time to invest in these funds is when the market view is that interest rates have touched their peak and are poised to reduce.

Gilt Funds invest in government securities of medium and long term maturities issued by central and state governments. These funds do not have the risk of default since the issuer of the instruments is the government. Net Asset Values (NAVs) of the schemes fluctuate due to change in interest rates and other economic factors.

These funds have a high degree of interest rate risk, depending on their maturity profile. The higher the maturity profile of the instrument, higher the interest rate risk.

Dynamic Bond Funds invest in debt securities of different maturity profiles. These funds are actively managed and the portfolio varies dynamically according to the interest rate view of the fund managers. These funds Invest across all classes of debt and money market instruments with no cap or floor on maturity, duration or instrument type concentration.

Corporate Bond Funds

These funds invest predominantly in corporate bonds and debentures of varying maturities that offer relatively higher interest, and are exposed to higher volatility and credit risk. They seek to provide regular income and growth and are suitable for investors with a moderate risk appetite with a medium to long term investment horizon.

Close Ended Debt Funds

Fixed Maturity Plans (FMPs) are closed ended Debt Mutual Funds that invest in debt instruments with a specific date of maturity that is less than or equal to the maturity date of the scheme. Securities are redeemed on or before maturity and proceeds are paid to the investors.

FMPs are similar to passive debt funds, where the portfolio manager buys and holds the debt securities for the entire duration of the product. FMPs are a good option for conservative investors, as they do not carry any interest rate risk provided the investor stays invested until the maturity of the product. They are also a tax efficient investment option.

Hybrid Funds

They bridge the gap between equity and debt schemes by investing in a mix of equity and debt securities. This adds a considerable amount of risk to the product and will suit investors looking for commensurate returns with higher levels of risk than regular debt funds.

Monthly Income Plans (MIPs) strive to offer the benefit of diversification across asset classes by investing a proportion of the portfolio in debt securities (70% to 95%) with a smaller allocation in equity securities (5 % to 30 %).

As the correlation between prices of equity and debt is low, this product endeavors to give an investor returns that are relatively higher than debt market returns. MIPs can be classified as debt oriented hybrids that seek to -generate income from the debt securities maximise the benefits of long term growth from equity securities aim for periodic distribution of dividends

However, an important point to be noted is that monthly income is not assured and it is subject to the availability of distributable surplus in the fund.

Capital Protection Oriented Funds are closed ended funds that are hybrid in nature; they allocate money to debt and equity securities. The allocation to debt securities is done in such a way that at the end of the term of the product, the value of debt investment is equal to the original investment in the fund. The equity portion aims to add to the returns of the product at maturity. These funds are oriented towards protection of capital and do not offer guaranteed returns. Say, for example, AAA bonds are quoting at interest rate of 10% p.a. for a 5 year term.This means that at the end of 5 years, the investment of Rs. 100 in such bonds would be worth Rs. 161.05, assuming reinvestment of the interest.

On the other hand, if one invests Rs. 62.09 in such bonds, the value of the bonds at the end of 5 years would be Rs. 100.

In such a case, the allocation between equity and debt would be 38 : 62 respectively. So, if the equity value reduces to zero, the investor gets back the original amount invested.

The asset allocation is a function of prevailing interest rates on high quality (AAA rated) bonds. It is mandatory for the fund to be rated by at least one rating agency in order to be called a capital protection oriented fund. Debt securities held in the portfolio must be of highest rating.

Multiple Yield Funds are close ended income funds that aim to optimize income from debt securities and potential growth from equity. They aim to limit the downside by investing in rated debt instruments of reputed issuers. Through a limited equity exposure, they aim to provide capital appreciation by investing in shares of companies without any sector or market capitalization bias. This exposure will help to participate in the growth of these companies thus seeking to provide the portfolio with an element of potential long term capital appreciation.

Equity mutual funds:

Investopedia defined Equity Mutual funds as 'A mutual fund that invests principally in stocks. It can be actively or passively (index fund) managed. 'Stock mutual funds are principally categorized according to company size, the investment style of the holdings in the portfolio and geography: Size is determined by a company's market capitalization, while the investment style, reflected in the fund's stock holdings, is also used to categorize equity mutual funds. Stock funds are also categorized by whether they are domestic (India) or international. These can be broad market, regional or single-country funds. There are so-called "specialty" stock funds that target business sectors such as Infrastructure, Banking, FMCG etc..

There are different varieties of equity mutual funds in the market.

Large Cap funds: Funds which invest a larger proportion of their corpus in companies with large market capitalization are called large cap funds. The criteria for large cap companies may vary. However, these are generally the ones with huge market capitalization. Large cap funds are known to offer stable and sustainable returns over a period of time, but might be outperformed by small and mid cap funds, which have higher risk exposure.

Mid and small cap funds: Mutual funds which diversify investments in between mid and small cap companies are termed as mid and small cap funds. The proportion of investments between midcap and small cap may vary from fund to fund. These funds invest in a mix of midcap and small cap stocks. Due to their exposure in high beta stocks, they are positioned on a high risk return trade-off plane compared to a large cap fund.

Multi cap funds: These are diversified mutual funds which can invest in stocks across market capitalization. In other words, they are market capitalization agnostic.

These funds resort to portfolio gyrations commensurate with the market condition. These funds invest in stocks across market capitalization. That is, their portfolio comprises of large cap, midcap and small cap stocks. They are relatively less risky compared to a pure mid cap or a small cap fund and are suitable for not-so-aggressive investors.

Thematic mutual funds: The Thematic Funds are a kind of mutual funds that invests across the sectors related to the common theme. This means, if the fund is built on an infrastructure theme might invest equities in construction companies, cement companies, steel companies and the other companies that are related to the infrastructure sector.

Unlike sector funds, the thematic funds are more diversified as the investments are concentrated in several sectors and not in a single sector. Both the sector funds are volatile and riskier than the broad market as their performance is solely based on the performance of the sector or sectors in which they are investing. The objective of thematic funds is to offer the investors an opportunity to invest in the theme related sectors that have a strong growth potential due to the boom in the industry.

Sector specific funds: Mutual funds which invest in a particular sector or industry are said to be sector-specific funds. Since the portfolio of such mutual funds consists mainly of investment in one particular type of sector, they offer less amount of diversification and are considered to be risky. Sector-specific funds are considered to be relatively more risky compared to a diversified fund. As these funds take exposure in a single sector, the concentration risk is high. Their performance is aligned with the performance of the sector in which they are investing. As the exposure is not broad based, it carries a high degree of risk. This type of funds is normally suitable for a highly aggressive investor.
Some of the sector-specific funds are mentioned below:

Banking funds: These are sector-specific mutual funds having a portfolio comprising mainly of equities of different banks. So if in general the banking sector is performing well, one can expect good returns.

Pharma funds: These are sector-specific mutual funds which have a portfolio comprising mainly of different pharmaceutical companies.

Technology funds: Sector-specific mutual funds which have a portfolio comprising mainly of IT companies.

FMCG funds: Sector-specific mutual funds catering to the investments in the fast moving commodity goods stocks.

1.1.5 Parameters to measure performance of mutual fund

1. **Alpha:** Alpha is a measure of an investment's performance on a risk-adjusted basis. It takes the volatility (price risk) of a security or fund portfolio and compares its risk-adjusted performance to a benchmark index. The excess return of the investment relative to the return of the benchmark index is its "alpha." Simply stated, alpha is often considered to represent the value that a portfolio manager adds or subtracts from a fund portfolio's return. A positive alpha of 1.0 means the fund has outperformed its benchmark index by 1%. Correspondingly, a similar negative alpha would indicate an underperformance of 1%. For investors, the more positive an alpha is, the better it is**.**

2. **Beta:** Beta, also known as the "beta coefficient," is a measure of the volatility, or systematic risk of a security or a portfolio in comparison to the market as a whole. Beta is calculated using regression analysis, and you can think of it as the tendency of an investment's return to respond to swings in the market. By definition, the market has a beta of 1.0. Individual security and portfolio values are measured according to how they deviate from the market.

   A beta of 1.0 indicates that the investment's price will move in lock-step with the market. A beta of less than 1.0 indicates that the investment will be less volatile than the market, and, correspondingly, a beta of more than 1.0 indicates that the investment's price will be more volatile than the market. For example, if a fund portfolio's beta is 1.2, it's theoretically 20% more volatile than the market.

   Conservative investors looking to preserve capital should focus on securities and fund portfolios with low betas, whereas those investors willing to take on more risk in search of higher returns should look for high beta investments.

3. **R-Squared:** R-Squared is a statistical measure that represents the percentage of a fund portfolio's or security's movements that can be explained by movements in a benchmark index. For fixed-income securities and their corresponding mutual funds, the benchmark is the U.S. Treasury Bill and, likewise with equities and equity funds the benchmark is the S&P 500 Index.R-squared values range from 0 to 100. According to Morningstar, a mutual fund with an R-squared value between 85 and 100 has a performance record that is closely correlated to the index. A fund rated 70 or less would not perform like the index.Mutual fund investors should avoid actively managed funds with high R-squared ratios, which are generally criticized by analysts as being "closet" index funds.

4. **Standard deviation:** Standard deviation measures the dispersion of data from its mean. In plain English, the more that data is spread apart, the higher the difference is from the norm. In finance, standard deviation is applied to the annual rate of return of an investment to measure its volatility (risk). A volatile stock would have a high standard deviation. With mutual funds, the standard deviation tells us how much the return on a fund is deviating from the expected returns based on its historical performance.

5. **Sharpe Ratio:** Developed by Nobel laureate economist William Sharpe, this ratio measures risk-adjusted performance. It is calculated by subtracting the risk-free rate of return from the rate of return for an investment and dividing the result by the investment's standard deviation of its return.The Sharpe ratio tells investors whether an investment's returns are due to smart investment decisions or the result of excess risk. This measurement is very useful because although one portfolio or security can reap higher returns than its peers, it is only a good investment if those higher returns do not come with too much additional risk. The greater an investment's Sharpe ratio, the better its risk-adjusted performance.

CHAPTER-2: LITERATURE REVIEW

Debt Mutual Funds mainly invest in a mix of debt or fixed income securities such as Treasury Bills, Government Securities, Corporate Bonds, Money Market instruments and other debt securities of different time horizons. Generally, debt securities have a fixed maturity date & pay a fixed rate of interest.

Equity Mutual funds are 'Mutual fund that invests principally in stocks. It can be actively or passively (index fund) managed. 'Stock mutual funds are principally categorized according to company size, the investment style of the holdings in the portfolio and geography: Size is determined by a company's market capitalization, while the investment style, reflected in the fund's stock holdings, is also used to categorize equity mutual funds. Stock funds are also categorized by whether they are domestic (India) or international. These can be broad market, regional or single-country funds. There are so-called "specialty" stock funds that target business sectors such as Infrastructure, Banking, FMCG etc.

William F sharpe [1966] in his paper on Mutual fund performance shows that performance can be evaluated with a simple yet theoretical measure that consider both risk and average return. However when performance is measured in this manner there are difference among funds and such differences do not appear to be entirely transitory. To a major extent they can be explained by difference in expense ratio, lending support to the view that the capital market is highly efficient and that good manager concentrate on risk and providing diversification and spending little efforts on the search for incorrectly priced securities.

Equity fund past performance:

CRISIL-AMFI in their mutual fund performance report [2002] has reveals that, over the past 16 years, equity mutual funds have outperformed the broader market index, CNX 500, during most of the market phases. The CRISIL-AMFI Equity Fund Performance Index has delivered a significant outperformance over benchmarks such as CNX NIFTY and CNX 500. The magnitude of outperformance is higher over a longer investment horizon, reinforcing the industry adage that investments in equity mutual funds should have a long-term horizon. The study also highlights the fact that at an aggregate level, equity funds have never given negative returns over any five-year investment horizon since 1997.

The CRISIL-AMFI Equity Fund Performance Index acts as a barometer to showcase how mutual funds have performed over a specific time period. Our study reveals that the CRISIL-AMFI Equity Fund Performance Index has given an annualized return of 22% over the past 16 years while the CNX NIFTY has given an annualized return of 12%, and the CNX 500, 13%. Thus, it can be seen that equity mutual funds have created significant wealth for mutual fund investors. At an aggregate level, Rs.1,000 invested in equity mutual funds on April 1, 1997 would have grown to Rs.22,950 as on March 31, 2013 vis-à-vis Rs.6,930 in CNX 500 index & Rs.5,860 in CNX NIFTY.

AMFI in its report [2003] highlights that When it comes to investing in equities, ‘think long-term’ is the golden rule of thumb. Staying invested for a longer time frame not only eliminates the impact of short-term market volatility but also helps generate positive returns.To look at the benefits of long-term investments, CRISIL looked at five-year returns on a daily rolling basis starting from April 1, 1997 of the CRISIL-AMFI Equity Fund Performance Index. The study revealed that the CRISIL-AMFI Equity Fund Performance Index never delivered negative returns for a five-year investment horizon on a daily rolling basis in the last 16 years, despite the fact that equity markets witnessed three bear phases during this period.

Long term debt funds:

CRISIL-AMFI in their mutual fund performance report [2002] has reveals that, While traditionally bank FDs comprise a bulk of the fixed income investment space,debt mutual funds are also an ideal avenue for investors due to their inherent qualities of professional management, liquidity and tax efficiency. Among debt mutual funds, long-term debt funds provided the highest returns when interest rates declined. CRISIL's study shows that long-term debt funds have outperformed bank FDs by a significant margin during declining interest rate cycles since April 1, 2000.Long-term debt funds are of two types – income funds and gilt funds. Income funds invest a majority of their corpus in long-term corporate debt papers and government securities. Gilt funds invest only in securities issued by central and state governments, thereby carrying lower credit risk than income funds. The average maturity of long-term debt funds can range between a few months to 25 years, depending on the prevalent interest rate scenario. These funds are suitable for investors with a long-term investment horizon. The value of a debt fund's portfolio is inversely related to the interest rate movement. The portfolio value rises when interest rates fall and vice-versa. The longer the maturity period of the portfolio, the greater is the impact of a change in interest rates. Thus, long-term debt funds benefit the most when interest rates fall. CRISIL's study of long-term debt funds (measured by the CRISIL-AMFI Debt Fund Performance Index) reveals that these funds have outperformed the 3-Year FD Index by a significant margin when interest rates fell. Gilt funds (represented by the CRISIL-AMFI Gilt Fund Performance Index) generated the highest returns during these phases.

AMFI in its report [2003] concluded that historically, long-term debt funds have given superior returns over FDs in a falling interest rate scenario. The quantum of returns depend on the pace and degree of the decline in interest rates. Investors should consider the following while investing in long-term debt funds:

1 Interest Rate Risk – Investors should look at the underlying interest rate cycle before investing. Long-term debt funds benefit from a falling interest rate regime.

2 Credit Risk – Investors can gauge the credit risk of a debt fund by looking at the rating distribution of the portfolio.

3 Concentration Risk – Funds that have a diversified portfolio of debt instruments but do not concentrate on a few sectors or issuers are ideal.

4 Exit Loads – Investors must check whether any exit load is applicable for early withdrawal from an open-ended debt fund.

Short term debt funds:

Fixed income is a very important component of an investment portfolio, especially for conservative investors who want stable returns. In India, retail investment in debt is mainly associated with FDs and there is a lack of awareness of debt mutual funds. Short-term debt fund is one such category investing in short-term corporate debt papers, money market instruments such as certificates of deposit (CDs), commercial papers (CPs), etc. and government securities whose residual maturities range up to three years. These funds are suitable for investors with a medium-term investment horizon. There are several distinct advantages that debt mutual funds offer over FDs. Debt funds provide investors access to portfolios of varying maturities and credits which can lead to higher returns over FDs. Debt funds also provide additional benefits of liquidity and tax efficiency. CRISIL's study of short-term debt funds over the past 10 years reveals that the returns on these funds have been higher than investments in 1-year FDs. On a year-on-year basis, these funds have outperformed 1-year FDs during a declining interest rate scenario. While short-term funds have outperformed the 1-Year FD Index over a long time frame, on a year-on-year basis, these funds have done well in the years in which interest rates have fallen. (There is an inverse relationship between interest rates and the price of debt securities, i.e. when interest rates rise, the price of the security falls and vice-versa.)

Short-Term Debt Fund Performance Index has given superior returns over 1-year FDs. Importantly, in six out of the 11 financial years, the CRISIL-AMFI Short-Term Debt Fund Performance Index has shown better returns than 1-year FDs. Even in the years in which they have underperformed, the underperformance is not significant. Short-term debt funds have a considerable tax advantage over FDs. While the interest earned on deposits is added to one's income and taxed at the applicable rate, income from short-term debt funds held for more than one year is treated as long-term capital gains and is taxed at a lower rate. For a

holding period of more than a year, the long-term capital gains tax rate applicable is lower at 10.3% without indexation or 20.6% with indexation benefit. Indexation (for tax purposes) allows the returns generated on the investment to be adjusted for inflation. Thus, investors in the higher income tax slab of 20% and 30% are likely to gain by investing in short-term debt funds on account of the lower tax rate and indexation benefit. However, if the investment horizon is less than a year, the tax is as per the individual tax slab. Further, for investors that fall in the highest tax bracket of 30%, the dividend option (reinvestment or payout) provides a tax advantage vis-à-vis FDs because the dividend distribution tax (DDT) is charged at 28.325% (25% plus 10% surcharge plus 3% cess).

AMFI in its report [2003] concluded that for a conservative investor, protection of the investment is critical. However, financial prudence dictates having liquidity for emergency as well as capital appreciation. If one seeks capital appreciation and tax benefit, along with reasonable safety of capital, short-term debt funds are a good alternative to FDs. However, unlike FDs, short-term debt funds do not have fixed returns. Returns in debt funds fluctuate depending on the movement in interest rates. When interest rates are falling, short-term debt funds have given higher returns than FDs. Thus, investors can take tactical decisions and time their investments in short-term debt funds.

CHAPTER-3 : RESEARCH METHODOLOGY

3.1 Data Collection Sources

The primary data for the research has been collected from the websites of the respected mutual funds and the performance of respected mutual fund is verified through various independent websites like Moneycontrol and valueresearchonline.com.

Data for index performance has been taken from respected index's website like NSE etc.

3.2 Tools and Techniques Used

Microsoft excel 2010 is used primarily as the tool for the analysis of data collection of this study. Various formulas that have been used to find the results of different parameters are as follows:

1. Beta = Covariance of return of fund and return of respected index

———————————————————————

Variance of the return of respected fund

Here,

Fund = Mutual fund under consideration

Index= Index against which the performance of the fund is calculated.

2. Alpha = R1-[R3+Beta(R2-R3)]

Where,

R1= Realized return of portfolio

R2= Market return

R3= Risk free return which here considered is 8%

3. Sharpe Ratio = R1-R3 / Standard deviation of the fund
   Where,
   R1= Realized return of portfolio.
   R3= Risk free return which here considered is 8%.

Data has been analyzed in excel and a relative comparison between two type of mutual fund is provided.

CHAPTER-4: DATA ANALYSIS

4.1 Data analysis of SBI Magnum equity fund:

SBI magnum equity fund has been selected to do this analysis as in the umbrella of SBI funds it's the oldest large cap equity fund. Here we have taken the data of the fund from various websites and analyzed that over excel. After the analysis following result had been recorded.

Parameter	Result
Standard deviation	39.844
Beta	1.19
Alpha	2.9
R-Square	0.63
Sharpe ratio	2.577
Tobin's Q Ratio	0.85

4.2 Analysis of the results

Standard deviation: Standard deviation is a measure of the dispersion of a set of data from its mean. If the data points are further from the mean, there is higher deviation within the data set. Standard deviation is calculated as the square root of variance by determining the variation between each data point relative to the mean.

In finance, standard deviation is applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is a statistical measurement that sheds light on historical volatility. For example, a volatile stock has a high standard deviation, while the deviation of a stable blue-chip stock is lower. A large dispersion indicates how much the return on the fund is deviating from the expected normal returns.

Here a standard deviation of 39.844 is recorded over the annual rate of return for last 10 years. The overall standard deviation of the mutual fund is quite high as being a blue chip mutual fund it should be on a lower range.

Beta: Beta is a measure of the volatility, or systematic risk of a security or a portfolio in comparison to the market as a whole. Beta is used in the capital asset pricing model (CAPM), which calculates the expected return of an asset based on its beta and expected market returns. Beta is also known as the beta coefficient.

A beta of 1 indicates that the security's price moves with the market. A beta of less than 1 means that the security is theoretically less volatile than the market. A beta of greater than 1 indicates that the security's price is theoretically more volatile than the market. For example, if a stock's beta is 1.2, it's theoretically 20% more volatile than the market. Conversely, if an ETF's beta is 0.65, it is theoretically 35% less volatile than the market. Therefore, the fund's excess return is expected to underperform the benchmark by 35% in up markets and outperform by 35% during down markets.

Here the Beta is 1.19 which indicates that the overall performance of the fund is 19% more volatile than the Nifty 50 which it is tracking. This means that when market has

rise then the overall fund has performed 19% better than the Nifty 50 and whenever market has come down the mutual fund has performed 19% worse than Nifty 50.

Alpha: Alpha, often considered the active return on an investment, gauges the performance of an investment against a market index used as a benchmark, since they are often considered to represent the market's movement as a whole. The excess returns of a fund relative to the return of a benchmark index are the fund's alpha.

Alpha is most often used for mutual funds and other similar investment types. It is often represented as a single number (like 3 or -5), but this refers to a percentage measuring how the portfolio or fund performed compared to the benchmark index (i.e. 3% better or 5% worse).Alpha is often used with beta, which measures volatility or risk, and is also often referred to as "excess return" or "abnormal rate of return."

Using alpha in measuring performance assumes that the portfolio is sufficiently diversified so as to eliminate unsystematic risk. Because alpha represents the performance of a portfolio relative to a benchmark, it is often considered to represent the value that a portfolio manager adds to or subtracts from a fund's return. In other words, alpha is the return on an investment that is not a result of general movement in the greater market. As such, an alpha of 0 would indicate that the portfolio or fund is tracking perfectly with the benchmark index and that the manager has not added or lost any value.

Here the value of Alpha is 2.9 which show that the mutual fund is performing 2.9% better than the Nifty 50 which is the benchmark index of the fund.

R-Squared: R-squared is a statistical measure that represents the percentage of a fund or security's movements that can be explained by movements in a benchmark index. For example, an R-squared for a fixed-income security versus the Barclays Aggregate Index identifies the security's proportion of variance that is predictable from the variance of the Barclays Aggregate Index. The same can be applied to an equity security versus the Standard and Poor's 500 or any other relevant index.

R-squared values range from 0 to 1 and are commonly stated as percentages from 0 to 100%. An R-squared of 100% means all movements of a security are completely explained by movements in the index. A high R-squared, between 85% and 100%, indicates the fund's performance patterns have been in line with the index. A fund with a low R-squared, at 70% or less, indicates the security does not act much like the index. A higher R-squared value indicates a more useful beta figure. For example, if a fund has an R-squared value of close to 100% but has a beta below 1, it is most likely offering higher risk-adjusted returns.

Here The value of the R-Square of the mutual fund is 0.63 which implies that it has a lower R-Square value which indicates that the mutual fund doesn’t act like the benchmark index.

Sharpe Ratio: The Sharpe ratio is the average return earned in *excess* of the risk-free rate per unit of volatility or total risk. Subtracting the risk-free rate from the mean return, the performance associated with risk-taking activities can be isolated. One intuition of this calculation is that a portfolio engaging in “zero risk” investment, such as the purchase of U.S. Treasury bills (for which the expected return is the risk-free rate), has a Sharpe ratio of exactly zero. Generally, the greater the value of the Sharpe ratio, the more attractive the risk-adjusted return.

The Sharpe ratio has become the most widely used method for calculating risk-adjusted return; however, it can be inaccurate when applied to portfolios or assets that do not have a normal distribution of expected returns. Many assets have a high degree of kurtosis ('fat tails') or negative skewness. The Sharp ratio also tends to fail when analyzing portfolios with significant non-linear risks, such as options or warrants.

Here the sharpe ratio of the mutual fund is 2.577 which indicates that the fund has earned 2.57 points more average return in excess of risk free rate per unit of total risk.

Tobin’s Q ratio: It states that the combined market value of all the companies on the stock market should be about equal to their replacement costs. The Q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets. a low Q (between 0 and 1) means that the cost to replace a firm's assets is greater than the value of its stock. This implies that the stock is undervalued. Conversely, a high Q (greater than 1) implies that a firm's stock is more expensive than the replacement cost of its assets, which implies that the stock is overvalued. This measure of stock valuation is the driving factor behind investment decisions in Tobin's model. Here the Q ratio of 0.85 shows that the fund is undervalued.

4.3 Data analysis of SBI Dynamic bond fund:

SBI dynamic equity fund has been selected to do this analysis as in the umbrella of SBI funds it's one of the oldest bond fund. Here we have taken the data of the fund from various websites and analyzed that over excel. After the analysis following result had been recorded.

Parameter	**Result**
Standard deviation	5.544
Beta	-0.287
Alpha	-1.64
R-Square	0.199
Sharpe ratio	-3.07
Tobin's Q Ratio	0.94

Standard deviation: a standard deviation of 5.544 is recorded over the annual rate of return for last 10 years. The overall standard deviation of the mutual fund is quite low as expected being a low risk debt mutual fund which is a positive for this fund.

Beta: Here the Beta is -0.287 which indicates that the fund is tracking the VR Bonds in slightly opposite manner i.e. the fund is getting less profit when VR bonds are providing profit to the customers but also getting less affected as compared to VR bonds when these bonds are occurring losses.

Alpha: Here the value of Alpha is -1.64 which show that the mutual fund is performing 1.64% worse than the VR bonds which is the benchmark index of the fund.

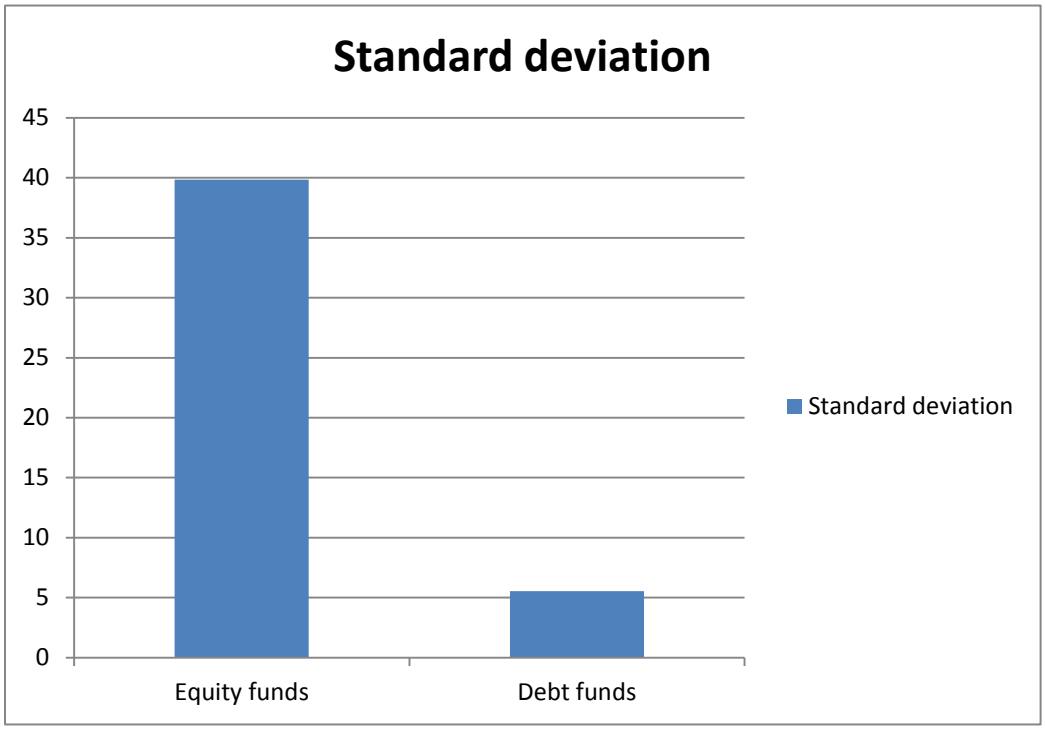
R-Squared: Here The value of the R-Square of the mutual fund is 0.199 which implies that it has a lower R-Square value which indicates that the mutual fund doesn't act like the benchmark index.

Sharpe ratio: Here the sharpe ratio of the mutual fund is -3.07 which indicates that the fund has earned 3.07 points less average return in excess of risk free rate per unit of total risk.

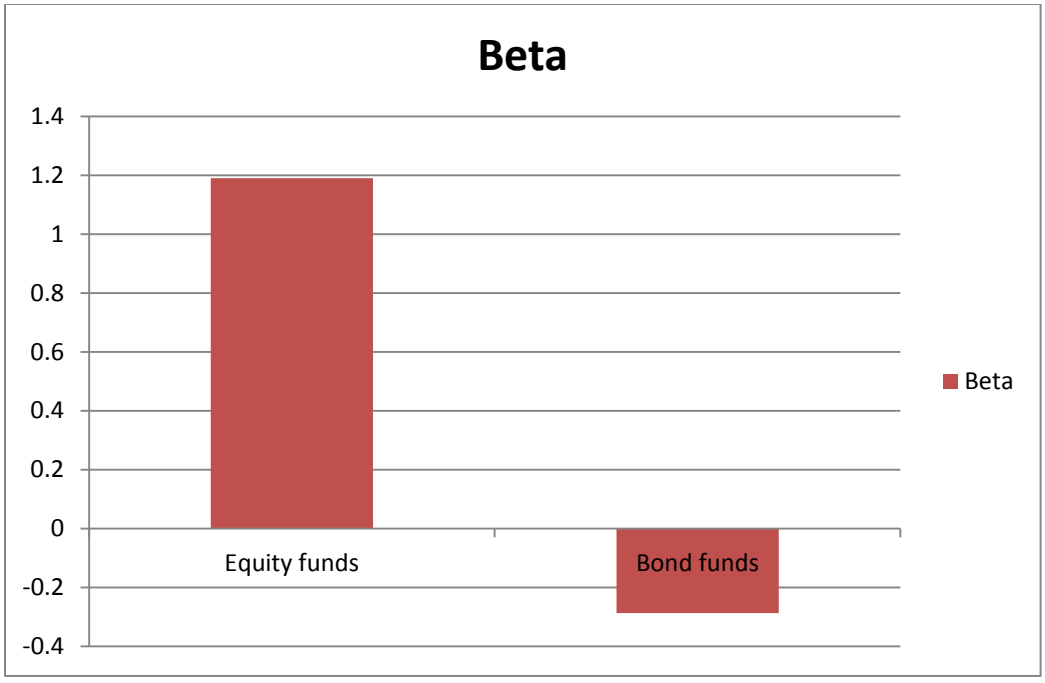
Tobin's Q ratio: Here the q ratio of the debt mutual fund is 0.94 which shows that although the fund is undervalued it is nearly reaching its full potential.

CHAPTER-5 RESULT COMPARISON :

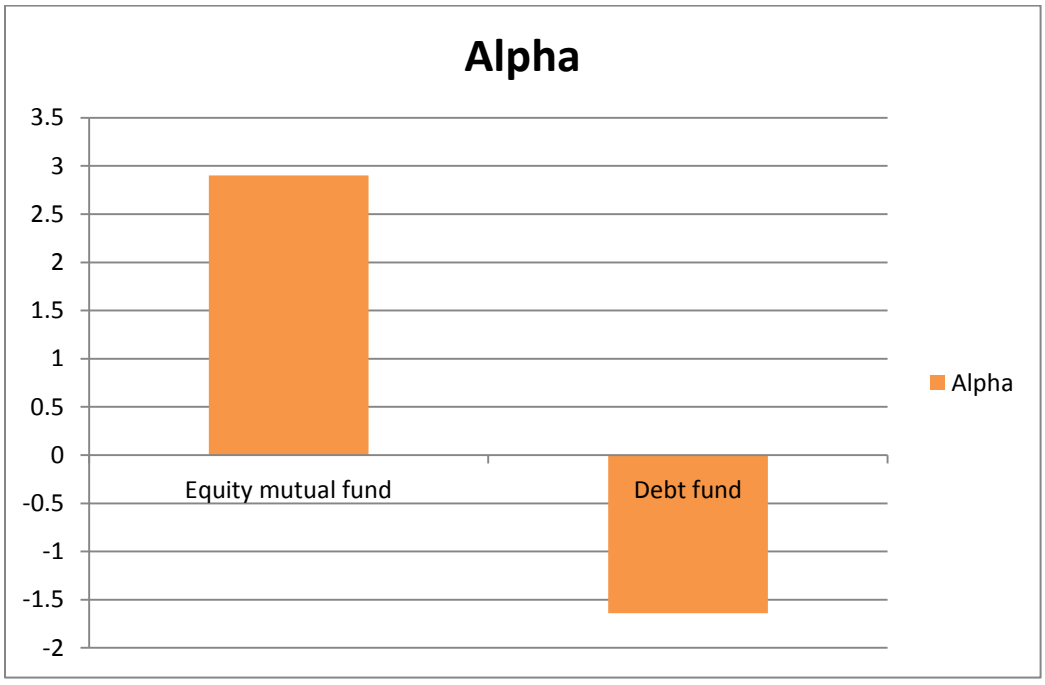
1. **Standard deviation:** Standard deviation of equity fund is 39.844 while that of debt mutual fund is 5.544. Debt fund is showing very less deviation from its mean while equity fund is a lot volatile. This is in-general is true as debt funds are considered less volatile and hence safer investment instrument.



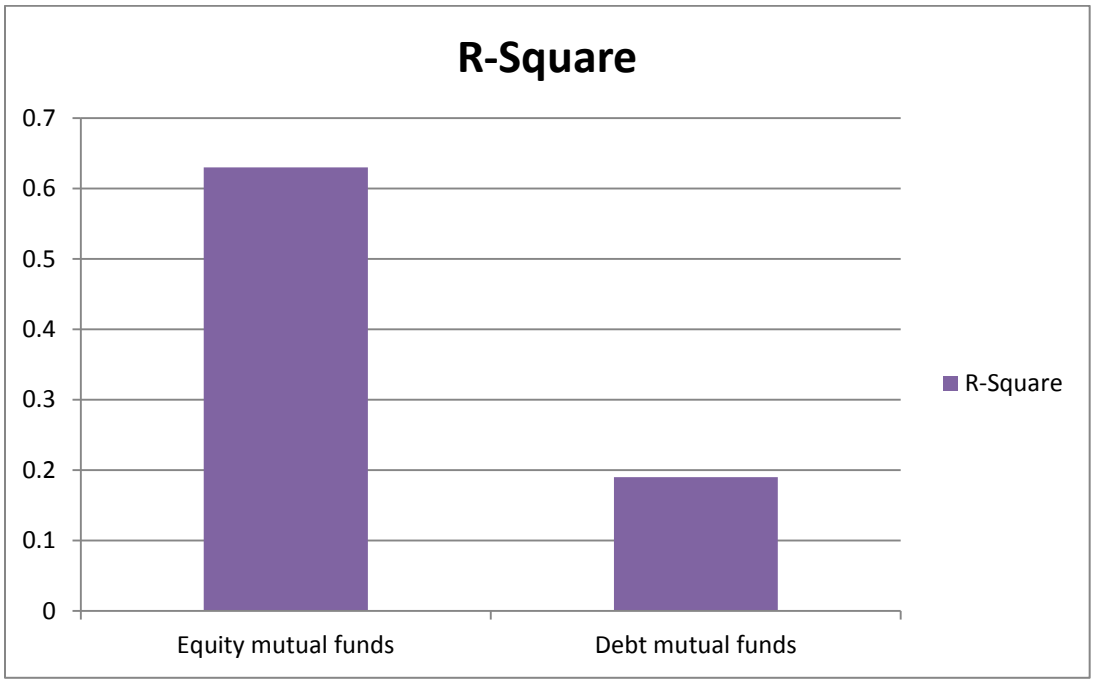
2. **Beta:** Beta of two funds under consideration is of opposite nature as equity mutual fund is positive while debt mutual fund is negative. The value of equity mutual fund is 1.19 while that of debt mutual fund is -0.287. Here equity mutual fund is bullish in nature while debt mutual fund is bearish in nature. The combination of these two funds can be considered ideal investment as it will decrease the risk of the investment.



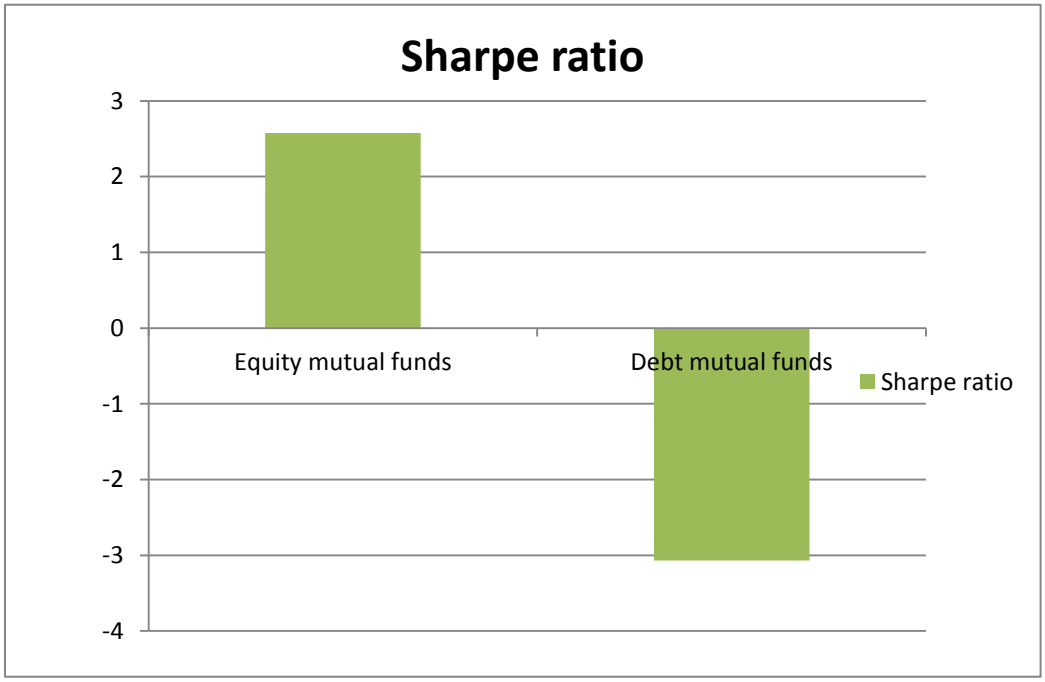
3. **Alpha:** Alpha of two funds under consideration is of opposite nature as equity mutual fund is positive while debt mutual fund is negative. The value of equity mutual fund is 2.9 while that of debt mutual fund is -1.64. This also shows that equity mutual fund has performed 2.9% better than benchmark index which it was tracking which in this case is NIFTY 50. On the other hand debt mutual fund has performed 1.64% lower than the benchmark index which in this case is VR Bonds. Again this result shows that a combination of these 2 funds will decrease the level of risk in the investment as they have opposite alpha.



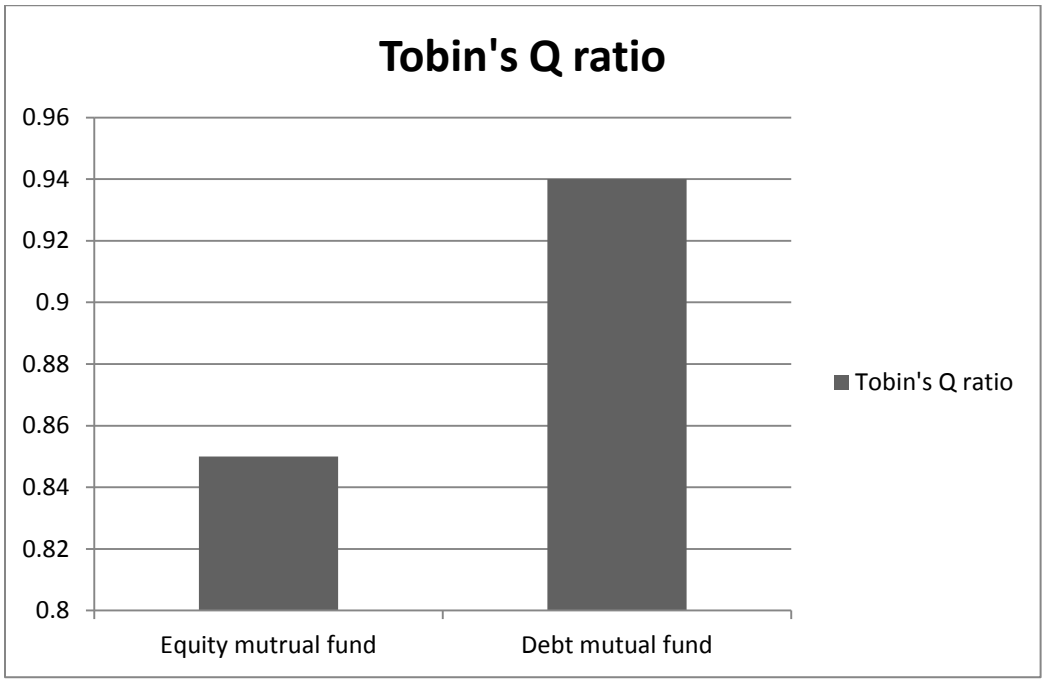
4. **R-Square:** The value of R-Square of both the funds has been on lower side. While the value of debt fund is 0.19 which is extremely low, the value of equity fund is 0.63 which is also not in the green range which is 0.7 to 1. This shows that only about 19% of the debt fund movement can be explained to its benchmark movement while that of only 63% of equity fund movement can be explained to its benchmark movement.



5. **Sharpe ratio**: Sharpe ratio is one of the most important and highly used fund analysis tool available. As we know that the Sharpe ratio is the average return earned in excess of the risk-free rate per unit of volatility or total risk. Here the value of the Sharpe ratio of equity mutual fund is 2.577 and that of debt mutual funds is -3.07. This on comparison shows that equity fund is earning more average return in excess of the risk free rate per unit of volatility.



6. **Tobin’s Q ratio:** It states that the combined market value of all the companies on the stock market should be about equal to their replacement costs. The Q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets. a low Q (between 0 and 1) means that the cost to replace a firm's assets is greater than the value of its stock. This implies that the stock is undervalued. Conversely, a high Q (greater than 1) implies that a firm's stock is more expensive than the replacement cost of its assets, which implies that the stock is overvalued. This measure of stock valuation is the driving factor behind investment decisions in Tobin's model. Here the ratio is 0.85 for equity funds while that of bond fund is 0.94.



LIMITATION AND SCOPE FOR FURTHER RESEARCH

1. The study is limited to only a single type of equity mutual fund i.e. large cap blue chip stocks but there are mid cap and small cap funds to where this research can be expanded.

2. Debt mutual fund is very tough to calculate against; here the benchmark chosen is VR Bonds, in further research it can be benchmarked against infrastructure bonds.

3. Further research can be done by taking monthly annual returns for last several years to give more precise result.

4. Some different parameters can also be taken into account to check the performance of these bonds like Sortino ratio ,other than these 6 which has been taken here.

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