

Question Paper
Portfolio Management and Mutual Funds - II (MSF2D4) : October 2007
Section D : Case Study (50 Marks)

- This section consists of questions with serial number 1 - 5.
- Answer all questions.
- Marks are indicated against each question.
- Do not spend more than 80 - 90 minutes on Section D.

Case Study

Read the case carefully and answer the following questions:

1. "With gold being one of the important asset classes, Gold ETFs will provide a better, simpler and affordable method of investing as compared to other investment methods like bullion, gold coins, gold futures, or jewellery". In light of this statement, explain the advantages of Gold ETFs.
2. a. Compute the return and risk of a portfolio comprising of equal proportions of investment in Benchmark Gold ETF and UTI Gold ETF.
b. Observe whether adding the portfolio constructed in (a) above to Reliance Equity Fund provides diversification benefits to Mr. Gupta as stated by Mr. Radha.
3. Compute the return and risk of a minimum variance portfolio consisting of Reliance Equity Fund and equally weighted portfolio of Gold ETFs.
4. The brokerage expenses for purchasing the units of Gold ETFs are Rs.25 or 0.25% of total value of purchases whichever are higher. Mr. Gupta invested in Benchmark Gold ETF and UTI Gold ETF every week. In every transaction, he purchased minimum number of units in such a way that the brokerage expenses per unit of his purchase were minimized. Using Appendix C:
a. Compute the number of units purchased by Mr. Gupta of each of Gold ETFs. (Adjust the number of units to be purchased to the nearest integer, as trading unit is 1).
b. Compute the total cost of purchases incurred by Mr. Gupta every week in each of Gold ETFs.
c. Compute the total value of investment and gains/loss on 29th June 2007 in each of Gold ETFs.
5. Many traditional approaches to portfolio diversification suggest that the more securities one adds to the portfolio, the better return and less risk one gets. However, excessive diversification may not result in risk reduction. Explain the perils of excessive diversification.

(9 marks) [Answer >](#)

(4 + 6 = 10 marks) [Answer >](#)

(9 marks) [Answer >](#)

(4 + 6 + 4 = 14 marks) [Answer >](#)

(8 marks) [Answer >](#)

Mr. Gupta, a middle level executive, working in a private organization approached Mr. Radha, a Chartered Financial Analyst, working in Standard and Investment as an Investment Advisor. Mr. Gupta has presently invested in Reliance Equity Fund (Growth Scheme) and he wants to add other asset classes which can give him better diversification benefits. Mr. Radha has suggested him to opt for Gold Exchange Traded Funds as gold is not correlated with other assets and the gold price is not necessarily driven by the same factors that drive the performance of other assets. Hence, adding gold to a portfolio introduces an entirely different class of asset. Gold is unusual because it is both a commodity and a monetary asset. It can provide 'insurance' against extreme movements on the value of traditional asset classes. In India, Benchmark is the first fund house which introduced Gold ETF called Gold Benchmark Exchange Traded Scheme (Gold BtES) in February 2007. Subsequently, UTI has introduced Gold ETF called GOLDSHINE in March 2007 and Kotak introduced in June 2007. ICICI Prudential and Reliance have filed offer documents with SEBI for launching the same.

GOLD ETFs:
The unit of gold-exchange traded fund is like a mutual fund unit backed by gold as the underlying asset and would be held mostly in demat form. An investor would get a securities certificate issued by the mutual fund running the Gold ETF denoting the ownership of a particular amount of gold. Gold ETFs are designed to offer investors a means of participating in the gold/bullion market without the necessity of taking physical delivery of gold, and to buy and sell through trading of a security on a stock exchange.

With gold being one of the important asset classes, Gold ETFs will provide a better, simpler and affordable method of investing as compared to other investment methods like bullion, gold coins, gold futures, or jewellery.

"Gold ETFs, like any other mutual fund instrument, would attract common men to save in small quantity with a minimum possible monthly balance of Rs.1,000 (roughly equivalent to the price of 1 gram gold) which, if continued, may accumulate over a period of time to give handsome returns on investments such as a daughter's wedding or higher education for children," said A.P. Kurian, chairman of the Association of Mutual Funds in India (AMFI). He further said the New Year was adding a new benchmark in the history of mutual funds, with the addition of Gold BtES in the securities portfolio. Looking at the success of Gold ETFs in the countries such as the US, South Africa and Australia, which have created an asset of about \$12 billion, India is all set to attract a good amount of retail participation, Kurian hoped.

World Scenario

Gold ETFs are a huge success worldwide, with 7 GETFs trading on 10 exchanges with a total value of Gold at more than \$12.8 bn (as on 29th December 2006)

Time Line of Gold ETFs	
March 2003	Gold Bullion Security launched in Australia
December 2003	Gold Bullion Security launched on LSE
November 2004	Street Tracks Gold ETF launched on NYSE
January 2005	1 share Corner Gold Trust on NYSE
November 2005	Lyxor Gold Bullion Security listed on Euronext
March 2006	ZKB Gold ETF listed in Switzerland
August 2006	Additional Listing of Street Tracks in Mexico
October 2006	Additional Listing of Street Tracks in Singapore
November 2006	SEI amended Certificate of Securities Act
February 2007	Gold ETF introduced in India by Benchmark AMC

Name of Gold ETF	AUM (in tonnes)
Gold Bullion Security Australia	10.67
Lyxor Gold Bullion Security listed on LSE	86.48
Street Tracks Gold ETF listed on NYSE	451.84
New Gold Bullion Debitum listed on JSE, SA	10.25
1 share Corner Gold Trust listed on NYSE	44.50
ZKB Gold ETF listed in Switzerland	1.53
GOLDSHINE listed on Istanbul Stock Exchange	0.3

Gold Benchmark Exchange Traded Fund (Gold BtES)

Benchmark Asset Management Company, a Mumbai-based mutual fund house, listed Gold BtES, the country's first Gold Exchange-Traded Fund (GETF), on the National Stock Exchange on March 19 2007.

Listing at Rs.1,000.30 a unit, or a gram, Gold BtES gained momentum surging to Rs.1,104, but slumped to Rs.947 within an hour of the launch due to profit booking. The unit closed at Rs.947.80, a marginal rise of Rs.2.50 over the allotment price of Rs.945.30, witnessing a total traded quantity of 66,436 units and a turnover of Rs.631.28 lakh. The trading unit for BtES has been fixed at 1 gram with a tick size of 1 paisa.

Benchmark Based the instrument with an initial amount of Rs.100 crore with the hope of reaching Rs.1,000 crore in the near future. According to Dr S.A. Dave, Chairman of Benchmark Trustee Company, Gold ETF has witnessed immense success overseas and recorded a 500 times growth in the last 15 years.

"This is just the beginning, as more more MFs are all set to launch the instrument very soon with tremendous potential of success," said Sanjiv Shah, executive director of Benchmark.

Benchmark GOLD Exchange Traded Fund: The investment objective of Gold Benchmark Exchange Traded Scheme (Gold BtES) is to provide returns that, before expenses, closely correspond to the returns provided by domestic price of gold through physical gold.

Type Of Scheme	Open Ended Exchange Traded Fund	
Date Of Inception	15/02/2007	
Asset Allocation	Gold bullion: 90% - 100% and Money Market instruments and Securitised Debt, Bonds including cash at call 0 - 10%	
Face Value	Rs.100	
Minimum Investment Amount	New Fund Offer: Investors can invest a minimum application amount of Rs.10,000/- and in multiples of Rs.1,000/- thereafter. Ongoing Basis: Once listed, 1 unit of Gold BtES will represent approximately 1 Gram of gold and investors can buy or sell units on the National Stock Exchange (NSE). The minimum number of units that can be bought or sold is 1 unit.	
Entry Load	New Fund Offer: Rs. 10,000 to Rs. 49,99,000 Rs. 50,00,000 to Rs. 1,99,99,000 Rs. 2,00,00,000 to Rs. 4,99,99,000 Rs. 5,00,00,000 and above Ongoing Basis: Nil	1.5% 1.0% 0.5% Nil
Exit Load	Nil	

Type Of Scheme	Open Ended Exchange Traded Fund	
Date Of Inception	15/03/2007	
Asset Allocation	Gold bullion: 90% - 100% and Money Market instruments and other debt securities: 0 - 10%	
Face Value	Rs.100	
Minimum Investment Amount	Investors can invest during the New Fund Offer with a minimum application amount of Rs.20,000/- and in multiples of Rs.1/- thereafter.	
Entry Load	New Fund Offer: Rs. 50,00,000 and less than Rs. 2,00,00,000 Greater or equal to Rs. 2,00,00,000 and less than Rs.5,00,00,000 Rs. 5,00,00,000 and above Ongoing Basis: Nil	1.50% 0.75% Nil
Exit Load	Nil	

Reliance Equity Fund (Growth): The primary investment objective of the scheme is to seek to generate capital appreciation & provide long-term growth opportunities by investing in a portfolio consisting of equity & equity related securities of top 100 companies by market capitalization & of companies which are available in the derivatives segment from time to time and the secondary objective is to generate consistent returns by investing in debt and money market securities.

Type Of Scheme	An Open Ended Diversified Equity Scheme	
Date Of Inception	07/03/2006	
Asset Allocation	75-100% in equity and equity related instruments Up to 25% in debt and money market instruments	
Face Value	Rs.10	
Minimum Investment Amount	Rs. 5,000/- and in multiples of Rs. 1 thereafter	

Entry Load	New Fund Offer : Nil Dipping Basic: For Subscription below Rs. 2,00,00,000 2.25% For subscription of Rs. 2,00,00,000 & above and below Rs. 5,00,00,000 1.25% For Subscription of Rs. 5,00,00,000 & above Nil
Exit Load	New Fund Offer: 2% if redeemed/switched before 6 months from the date of allotment for amount less than Rs.5,00,00,000 There shall be no exit load for amount of Rs.5,00,00,000 & above. Dipping Basic: Nil.

APPENDIX – 1				
Date	NAV of Benchmark Gold ETF (Rs.)	NAV of UTI Gold ETF (Rs.)	NAV of Reliance Equity Fund (Growth Option) (Rs.)	S&P CNX Nifty
25-June-2007	868.52	870.08	12.75	4318.30
27-June-2007	872.82	876.46	12.64	4252.05
15-June-2007	874.72	877.15	12.22	4171.45
30-June-2007	885.35	888.93	12.19	4145.00
01-June-2007	883.69	887.30	12.42	4297.05
23-May-2007	875.39	876.70	12.16	4248.15
18-May-2007	888.93	890.24	12.09	4214.50
11-May-2007	907.50	905.06	11.72	4076.05
04-May-2007	917.15	917.25	11.77	4117.75
27-April-2007	910.08	909.82	11.82	4081.50
20-April-2007	946.09	942.30	11.61	4081.55
16-April-2007	943.37	939.84	11.42	3984.95

END OF SECTION D

Section E : Caselets (50 Marks)

- This section consists of questions with serial number 6 - 11.
- Answer all questions.
- Marks are indicated against each question.
- Do not spend more than 80 - 90 minutes on Section E.

Read the caselet carefully and answer the following questions:

6. As per the caselet, wide range of issues such as climate change, environment, bio-diversity, human rights and fair wages and remuneration that 10 years ago were considered 'non-financial' are now coming to the fore as factors that can have a significant impact on investment value. With respect to this, explain what 'Socially Responsible Investing' is. And also analyse why Sustainable Development Fund of ABN Amro has received lukewarm response.
7. With respect to the caselet, explain the significance of Socially Responsible Investing.

(7 marks) [Answer 2](#)

(9 marks) [Answer 2](#)

Do you avoid putting your money in tobacco and liquor companies? Does it matter to you if the company practices gender equality? Is it important that it does not damage the environment? If you answer as in the affirmative, you have a conscience when it comes to investing. Wide range of issues such as climate change, environment, bio-diversity, human rights and fair wages and remuneration that 10 years ago were considered 'non-financial' are now coming to the fore as factors that can have a significant impact on investment value. It is called Socially Responsible Investing (SRI). ABN Amro mutual fund (MF) claims to have come up with a fund that takes care of your concerns and conscience.

India's first Socially Responsible Investing (SRI) Fund, ABN Amro Sustainable Development Fund (ASDF) will invest in companies that follow high disclosure policies relating to their Environment, Social and Corporate Governance (ECG) parameters. Being the fifth-largest SRI MF in Europe and having 24 such schemes in Europe, Asia and Latin America, ABN Amro MF comes with an experience of managing such funds abroad.

The fund has tied up with credit rating agency, Crisil to shortlist companies. Crisil will rate all companies that form a part of S&P CNX 500 index on the basis of their disclosure standards across a number of factors under the ECG parameters. ASDF would invest 65 per cent of its corpus in companies that perform well in this rating exercise—not necessarily in the same order as they stand in the Crisil report. This will be based on its fund manager's analysis of the company's future performance.

Crisil's current SRI methodology does not match international standards. For instance, it evaluates companies mainly on disclosures and transparency, but does not evaluate the company's performance on ECG issues. In some cases, companies that are deemed immoral or ethically unacceptable may end up scoring brownie points with Crisil.

For instance, a chemical manufacturing company emitting poisonous gases would pass the limus test even if such emission is beyond the normal-acceptable limit, so long as it admits the volume of gases emitted. Says CEO, ABN Amro MF, Nabil Jaber, "Sustainability is the best disinfectant. ASDF is a step in encouraging companies to disclose more. Besides, we have also observed that companies that have a higher disclosure policy also do well."

On the other hand, there are certain parameters that take care of things like company culture and their work environment. So, a company that has a sexual harassment suit filed against it would not score despite the fact that it has disclosed it so. Although ASDF is not an ideal SRI fund and does not capture certain aspects of social responsibility, it is a start. Expect more SRI fund launches in the future, as disclosures improve among companies. If you invest with a conscience, you may want to give ASDF a try.

There is lukewarm response to ABN Amro Sustainable Development Fund. Launched in March 2007, ABN Amro Sustainable Development Fund is the first SRI fund to collect money in India, for investing in companies with good environment, social and governance values.

"Though, investor response was a bit lukewarm, one should accede to the fact that this fund was a bit ahead of its time. But if we take cues from Brazil, which is similar to Indian market and where a similar fund was launched by ABN Amro, this fund should do well as it caters. The Brazilian fund also received a cold response when it was launched, but later on, it turned out to be among the top performing funds in that country," Mr. Jaber added. Globally, there are several SRI funds that cater to investors with an ethical bend of investment preference. SRI funds, currently, have \$2 trillion in assets across the globe. In the US, about \$2 trillion (or 9% of total assets under management) is in SRI funds, while in Europe the corresponding figure is about \$1 trillion.

"Indian investors are not ready for SRI funds as yet. There is a feeling (even among high net worth investors) that fund managers will compromise on returns for the sake of meeting social objectives," said a fund manager.

"In developed countries, there is a correlation between ESG-compliant companies and stock prices," said Navid Bir Kumar, managing director, Standard Chartered Mutual Fund.

There is no conclusive evidence to prove that socially responsible companies perform better than others. However, several academic studies have shown positive correlation between environment, social, and corporate governance performance, and financial performance. Pension funds in developed countries, typically, are more inclined towards being socially responsible. The United Nations Environment Programme Finance Initiative, in a recent report, has noted a significant increase in the number of institutional investors and pension funds taking interest in Socially Responsible Investment.

"This trend will catch up in India as well. In a globalised economy, Indian companies will have to be ESG compliant to meet global standards. Global Reporting Initiative, U.O labour and employment convention and Kyoto Protocol would further raise ESG compliance levels in Indian companies. This will popularise ethical investing India," said Sanil K. Saha, senior economist, Crisil, which structured the rating scores for ABN Amro Sustainable Development Fund. Crisil is also working on an ESG index (structured from NSE-SRI companies) on the lines of global SRI indices like FTSE4 Good Index Series, Domini 400 Social Index, Dow Jones Sustainable World Index, Ethibel Sustainability Indices and Humanix Europe.

END OF CASELET 1

Caselet 2

Read the caselet carefully and answer the following questions:

8. According to the caselet, all individuals can be specifically differentiated on various parameters, and depending on the various attributes, their investment decisions are influenced by different factors. Discuss the various factors influencing investment decisions.
9. As mentioned in the caselet, taking the fullest possible advantage of the portfolio effect requires diversifying in two important ways i.e. diversification by investment style and diversification by investment objective. Explain in detail.

(10 marks) [Answer 2](#)

(8 marks) [Answer 2](#)

Investment has been identified as the postponement of current consumption in expectation of having an increased amount available for consumption in the future. For institutional investors, there are professional investment and portfolio managers. But for an individual, the management of personal investment becomes difficult, as he or she is not aware of the intricacy of the investment world. The emergence of new investment avenues and increasing financial literacy coupled with socio-economic changes, are driving Indians to invest, in order to attain financial security. The funds available for with any individual for personal investments comprise of two parts namely savings and postponement of present consumption of funds.

Today, an individual is more knowledgeable and better informed about the availability of investment avenues, but lack the adequate knowledge to manage them. The avenues for investment have increased, thanks to Financial Engineering. Investors can today invest both in the form of physical assets as well as financial assets. Many new instruments and securities are emerging to suit the varied requirements of individual investors.

An investor has various alternative avenues to invest his savings in. Hence, savings are productively invested in assets depending on their risk and return characteristics. The objective of the investor is to minimise the risk involved in investment and maximise the return from the investment. Savings kept in the form of cash are not only unproductive as they do not earn anything, but also loses its value because of the rise in prices. Thus, rise in prices or inflation erodes the value of money. Savings are invested to provide a hedge or protection against inflation. If the investments cannot earn at par with the rise in prices, the real rate of return will be negative. Thus, the basic objective of an investor can be maximisation of return, minimisation of risk and hedge against inflation.

Investment is distinct from gambling or speculation. Investment is a planned risk of construction and management of personal investment portfolio by an individual, and is done as per his requirements and life-stage. It is an activity, whose outcome should match the short-term and long-term financial needs of an individual and/or his family. All individuals can be specifically differentiated on various parameters, and depending on the various attributes, their investment decisions are influenced by different factors.

If we consider a situation where a conservative investor has a portfolio containing two different funds, one fund invests primarily in natural resource-oriented stocks, which normally do well in inflationary periods. The other fund invests primarily in financial stocks – such as Central Government and Financial Institutions securities, which typically do well in disinflationary periods. If a portfolio is constructed consisting of both funds, their fluctuations, will, in part, tend to cancel one another as inflation rates vary over time. As a consequence, the risk level of the overall portfolio will be reduced below the risk level of either individual fund. But an investor should remember that every individual fund must also invest in numerous stocks located within many different industries to further limit the business risk. Taking the fullest possible advantage of the portfolio effect requires diversifying in two important ways i.e. diversification by investment style and diversification by investment objective.

END OF CASELET 2

Caselet 3

Read the caselet carefully and answer the following questions:

10. As mentioned in the caselet, the arbitrage is sought by taking advantage of the mispricing between the cash market and the derivatives market. In light of this, briefly illustrate how arbitrage works.
11. With respect to the caselet, explain the advantages and the disadvantages associated with arbitrage opportunities funds.

(8 marks) [Answer 2](#)

(8 marks) [Answer 2](#)

The Sensex is well above 15,000 points. And there is clear consensus among experts that whether the market goes up or down, there will be a serious element of volatility in the days to come. A question that many investors who have already sold and booked profits are facing is what they should do with the excess cash they have. The options aren't too many. One could plough the money back into stocks, but the element of volatility may dissuade many from doing so. At the same time, locking funds in the debt market, be it income funds or longer tenure deposits, is also not very smart, as one does not know how the stock market may behave.

So the options in such a case are short-term debt products such as fixed maturity plans, short-term bond funds, bank fixed deposits or liquid funds. Another interesting option is arbitrage funds.

Investors, who are not familiar with arbitrage funds, might just end up thinking that these are equity-oriented schemes with another fancy name. However, that is not the case.

What such funds aim to do is to take advantage of the arbitrage opportunities between the cash and the futures market to generate fixed income. The arbitrage is simple by taking advantage of the mispricing between the cash and the derivatives market. Hence, these are also named as derivative funds. Nowadays, these funds have sophisticated software products that flag such mispricing, the moment it occurs. In most cases, these have been superior to those of other fixed-income schemes. What makes it attractive for an investor to buy into a derivative fund?

According to Biren Mehta, fund manager, JM Mutual Fund, "Every portfolio should have some asset allocation to an arbitrage fund. That is because, it is virtually a risk-free product, completely hedged at all times and hardly impacted by the volatility in the markets," Sanjay Shah, Chief Investment officer of Fitchmark Mutual Fund, which was the first one to launch a derivative fund in December 2006, says "Derivative funds have given good returns compared to fixed income funds. Earlier there was a stipulation that the maximum derivative position a fund could take was 50 per cent of its asset size."

"Now there is no restriction on the amount arbitrage funds can invest in derivatives. (They can engage in arbitrage activity upto 75-80 per cent of the asset size.) We expect derivative funds to do well going forward. The volatility in these funds is not much since they don't take interest rate risks," he adds.

In October 2006, SBI MF launched SBI Arbitrage Opportunities Fund (SBI-AOF). The fund proposes to capitalize on the arbitrage opportunities arising out of mis-pricing of stocks in the equities and derivatives (Futures & Options) markets.

An arbitrage opportunity arises due to market inefficiencies, which in turn results in mis-pricing in prices of stocks or other instruments in two or more markets. SBI-AOF seeks to exploit such mis-pricing opportunities arising to equities and derivatives markets. In the absence of profitable arbitrage opportunities, the fund will hold its assets in debt and money market instruments. Besides adopting the most commonly used arbitrage strategy of purchasing stocks in equity markets and simultaneously selling futures contracts of the same stocks, SBI-AOF will use other complex strategies as permitted by SEBI (Security and Exchange Board of India).

For taxation purposes, arbitrage funds are identified as equity funds, which is a big advantage for investors. Hence, the short-term capital gains tax is 10 per cent and there is no long-term capital gains tax, if one stays invested for more than a year. Dividends are also tax-free without any dividend distribution tax.

On the other hand, in the case of non-equity mutual funds, dividends are subject to a distribution tax of 15 per cent. If one chooses the growth option in a non-equity fund, and is invested for less than a year, short-term capital gains tax would be applicable which would be as per the tax slab of the individual. Similarly, for over one year, long-term capital gains taxes are at the rate of 10 per cent or 20 per cent with indexation. Thus, arbitrage funds are more tax-efficient than debt funds or monthly income plans.

The post-tax returns in the arbitrage fund are superior to fixed maturity plans, bank fixed deposits, income funds, liquid fund schemes and savings bank accounts. Investors wanting a broader from the equity market and for those looking for safe fixed income should invest in arbitrage funds.

END OF CASLET 3

END OF SECTION E

END OF QUESTION PAPER

Suggested Answers

Portfolio Management and Mutual Funds - II (MSFZD4) : October 2007

Section D : Case Study

1. No risk of holding physical stocks: As Gold ETFs are issued in demat form, the risk associated with holding physical gold is reduced considerably.

Affordable to small investors: Minimum investment in ETF in secondary markets is one unit representing approximately one gram of gold in the beginning and the weight of gold representing 1 unit keeps reducing to the extent of expenses. Gold ETFs are ideal for small retail investors as they can buy a just one unit from the exchange. One unit of the fund will represent one gram of gold.

High Liquidity: Gold ETFs can be easily bought/sold like any other stock on the exchange during market hours at real-time prices as opposed to end of day prices. Its units can be traded like a share and therefore it provides the ability to buy and sell them quickly at the ruling market price unlike gold that can be sold only for a discount and by a cumbersome process.

Lower cost: Gold ETFs enjoy the benefits of lower cost and higher transparency. As they are listed on the exchange, costs of distribution are much lower. Further, exchange traded mechanism helps reduce minimal collection, disbursement and other processing charges. Gold futures include the cost of carry that will be absent on a Gold ETF. The expenses incurred in buying and selling units and the schemes ongoing expenses will be less than the costs associated with buying and selling of gold and storing and insuring gold bullion in a traditional gold bullion market.

Low tracking error: Tracking Error of Gold ETFs is likely to be low as compared to a normal fund. Due to the creation/redemption of units only through in-kind mechanism, the fund can keep lesser funds in cash. Also, time lag between buying/selling units and the underlying physical gold is much lower.

Better diversification: It helps investors to diversify across asset classes, as gold is expected to be less correlated with other asset classes.

[TOP](#)

2. a.

Date	Return on Benchmark Gold ETF (%) (R _B)	Return on UTI Gold ETF (%) (R _U)	Return on equally weighted portfolio of Gold ETFs (%) (R _p)	$[(R_p) - \frac{1}{2} [(R_B) + (R_U)]]$	$[(R_p) - \frac{1}{2} [(R_B) + (R_U)]]^2$
20-Apr	0.37	0.58	0.48	1.19	1.42
27-Apr	1.89	-3.75	-3.42	-3.11	9.67
4-May	0.78	0.82	0.80	1.51	2.28
11-May	-1.65	-1.28	-1.46	-6.46	0.20
18-May	-2.05	-1.70	-1.88	-1.17	1.37
25-May	-1.52	-1.52	-1.52	-6.81	0.66
1-Jun	0.95	1.21	1.08	1.79	3.20
8-Jun	0.19	0.18	0.19	0.90	0.81
15-Jun	-1.29	-1.23	-1.27	-8.56	0.31
22-Jun	-0.22	-0.08	-0.15	0.36	0.33
29-Jun	-0.49	-0.73	-0.61	0.10	0.01
Total	0.13	-7.58	-7.86		20.24
Average	-0.74	-6.69	-6.73		

Return of portfolio of Gold ETFs = - 0.71

Variance on returns of portfolio of Gold ETFs = 20.22/10 = 2.022%(%)²

Standard deviation of returns of portfolio of Gold ETFs = (2.022)^{1/2} = 1.42%

b.

Date	Return on Reliance Equity Fund (%) (R _B)	Return on equally weighted portfolio of Gold ETFs (%) (R _p)	$[(R_p) - \frac{1}{2} [(R_B) + (R_U)]]$	$[(R_p) - \frac{1}{2} [(R_B) + (R_U)]]^2$
20-Apr	1.14	0.48	0.12	0.01
27-Apr	0.61	-3.42	-6.41	0.17
4-May	1.29	0.80	0.27	0.07
11-May	-6.42	-1.46	-1.44	2.87
18-May	3.16	-1.88	-2.14	4.58
25-May	0.58	-1.52	-6.44	0.19
1-Jun	2.14	1.08	1.12	1.25
8-Jun	-1.85	0.19	-2.87	8.24
15-Jun	0.25	-1.27	-6.77	0.59
22-Jun	3.44	-0.15	2.42	5.86
29-Jun	0.87	-0.61	-6.15	0.62
Total	11.21	-7.86		23.05
Average	1.62	-6.71		

Variance on returns of Reliance equity fund = 23.05/10 = 2.305%(%)²

Standard deviation on returns of Reliance equity fund = (2.305)^{1/2} = 1.52%

Variance on returns of portfolio of Gold ETFs = 20.22/10 = 2.022%(%)²

Standard deviation of returns of portfolio of Gold ETFs = (2.022)^{1/2} = 1.42%

Covariance between the returns of Reliance equity fund and portfolio of Gold ETFs = 1.56/10 = 0.156%(%)²

Correlation between the returns of Reliance equity fund and portfolio of Gold ETFs = 0.156/(1.52*1.42) = 0.07

The ratio between the standard deviation of returns of Gold ETFs and Reliance Equity Fund = 1.42/1.52 = 0.93

Since correlation (0.07) is less than the ratio of standard deviations (0.93), there will be diversification benefits, if portfolio is constructed using both Gold ETFs and Reliance Equity Fund.

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3. Minimum Variance Portfolio (W₁):

$$W_1 = \frac{\sigma_B^2 - \rho \sigma_B \sigma_P}{\sigma_B^2 + \sigma_P^2 - 2\rho \sigma_B \sigma_P}$$

$$W_1 = \frac{0.01 - 0.0948 \times 0.0142}{0.01 + 0.0204 - 2 \times 0.0948 \times 0.0142}$$

$$W_1 = \frac{0.01 - 0.001348}{0.01 + 0.0204 - 0.002716}$$

$$W_1 = \frac{0.008652}{0.027684} = 0.3125$$

$$\text{Proportion of investment to be made in Reliance Equity Fund} = 0.3125$$

$$\text{Proportion of investment to be made in portfolio of Gold ETFs} = 0.6875$$

$$\text{Return on minimum variance portfolio} = 0.3125 \times 1.62 + 0.6875 \times (-6.71) = -0.0948\%$$

$$\text{Variance of returns on minimum variance portfolio} = 0.3125^2 \times 2.305 + 0.6875^2 \times 2.022 + 2 \times 0.3125 \times 0.6875 \times 0.156$$

$$= 0.156 \times 0.0001 = 0.0000156$$

$$\text{Standard deviation of returns on minimum variance portfolio} = 0.0000156^{1/2} = 0.000125$$

$$\text{Risk (\%)} = 0.000125 \times 100 = 0.0125\%$$

[TOP](#)

4. a. Benchmark Gold ETF

Date	NAV of Benchmark Gold ETF (Rs.)	Minimum Number of units purchased to minimize brokerage expense per unit (Rs.25/(NAV-0.25%))
1	2	3
16-Apr	941.37	10,600.09 ~ 11
20-Apr	946.9	10,560.78 ~ 11
27-Apr	910.08	10,980.09 ~ 11
4-May	917.15	10,963.34 ~ 11
11-May	907.5	11,019.28 ~ 11
18-May	888.93	11,249.48 ~ 11
25-May	875.39	11,423.48 ~ 11
1-Jun	883.08	11,316.59 ~ 11
8-Jun	885.35	11,298.97 ~ 11
15-Jun	874.72	11,432.23 ~ 11
22-Jun	872.82	11,467.12 ~ 11
29-Jun	868.52	11,513.84 ~ 12
		133

UTI Gold ETF

Date	NAV of UTI Gold ETF (Rs.)	Minimum Number of units purchased to minimize brokerage expense per unit (Rs.25/(NAV-0.25%))
1	2	3
16-Apr	939.84	10,640.11 ~ 11
20-Apr	945.3	10,579.61 ~ 11
27-Apr	909.82	10,991.19 ~ 11
4-May	917.25	10,962.15 ~ 11
11-May	905.66	11,041.67 ~ 11
18-May	890.24	11,232.91 ~ 11
25-May	876.7	11,466.41 ~ 11
1-Jun	887.3	11,297.15 ~ 11
8-Jun	888.93	11,249.48 ~ 11
15-Jun	877.15	11,400.56 ~ 11
22-Jun	876.46	11,409.53 ~ 11
29-Jun	870.08	11,493.2 ~ 11
		132

b. Benchmark Gold ETF

Date	NAV of Benchmark Gold ETF (Rs.)	Minimum Number of units purchased to minimize brokerage expense per unit	Total Brokerage	Total Cost
1	2	3	$4 \times 2 \times 3 \times 0.25\%$	$5 \times (2 \times 3) \times 4$
16-Apr	941.37	11	25.54	10,403.01
20-Apr	946.9	11	26.04	10,441.94
27-Apr	910.08	11	25.63	10,035.91
4-May	917.15	11	25.22	10,113.87
11-May	907.5	11	24.96	10,087.46
18-May	888.93	11	24.45	9,892.68
25-May	875.39	11	24.07	9,653.36
1-Jun	883.08	11	24.36	9,744.89
8-Jun	885.35	11	24.35	9,763.20
15-Jun	874.72	11	24.05	9,645.37
22-Jun	872.82	11	24.09	9,625.92
29-Jun	868.52	12	26.06	10,448.30
		133		1,19,685.61

UTI Gold ETF

Date	NAV of UTI Gold ETF (Rs.)	Minimum Number of units purchased to minimize brokerage expense per unit	Total Brokerage	Total Cost
1	2	3	$4 \times 2 \times 3 \times 0.25\%$	$5 \times (2 \times 3) \times 4$
16-Apr	939.84	11	25.85	10,644.09
20-Apr	945.3	11	26.80	10,624.30
27-Apr	909.82	11	25.82	10,033.04
4-May	917.25	11	25.22	10,114.97
11-May	905.66	11	24.91	9,997.77
18-May	890.24	11	24.48	9,817.12
25-May	876.7	11	24.11	9,667.81
1-Jun	887.3	11	24.48	9,784.75
8-Jun	888.93	11	24.45	9,802.68
15-Jun	877.15	11	24.12	9,672.77
22-Jun	876.46	11	24.10	9,665.16
29-Jun	870.08	11	23.93	9,594.81
		132		1,18,528.62

- c. Benchmark Gold ETF
- Value of investment at the end of 29th June 2007 = 133 × 868.52 = Rs.1,15,513.16
- Total cost = Rs. 1,19,685.61
- Loss as on 29th June 2007 = Rs.1,15,513.16 – Rs. 1,19,685.61 = – Rs.4,172.45
- UTI Gold ETF
- Value of investment at the end of 29th June 2007 = 132 × 870.08 = Rs.1,14,850.56
- Total cost = Rs.1,18,528.62
- Loss as on 29th June 2007 = Rs.1,14,850.56 – Rs.1,18,528.62 = – Rs.4,078.06

[TOP](#)

5.
- Over diversification means selecting too many securities in a portfolio. This can diminish the significance of an individual holding. Good performers can get lost in the crowd, minimizing their positive impact on the overall portfolio. In addition, over diversification can increase the costs of investing and can make it difficult to maintain and manage portfolio. Because, owning too many securities can easily result in a dangerous combination of over diversification and excessive cost.
- Over diversification can theoretically create a perfect hedge and thus produce a flat or zero return. For example, if you purchase gold mutual funds as an inflation hedge and also has fixed income mutual funds, which are deflationary in their *ex-ante*, depending on what the economy does, one fund can rise and one can fall, thus resulting in a neutral response. Therefore, it is important to have a portfolio that is diversified but not to such a great extent that it does not provide good returns.

[TOP](#)

Section E: Caselets

6.
- SRI entails investing in companies that carry on their activities without compromising on values or morals. The thought process is that, if companies have to take care of these issues over time, then it is not smart stocks from a set of companies which are seen to be higher up on ESG framework, then the riskiness would reduce. The financial analysis and valuations would dictate the final portfolio, constructed from stocks short listed under the ESG framework. There are a number of screens that SRI funds usually look into.
- The sustainable development fund by ANN Anuro is a SRI fund, which is being launched for the first time in India. The reasons for halcyonous response for ANN Anuro Fund can be "Uchha in the Wind, we are not very environment conscious. The sensitivity of the developed market towards issues that could impact the human race is still alive as new in Indian investors though. Investors believe ESG-compliant companies are better-managed and have lower risk and better long-term growth. This is one reason why such products are very popular here. Indian investors will have to evolve themselves to being eco conscious before using such niche investment products.
- This trend will catch up in India as well. In a globalised economy, Indian companies will have to be ESG compliant to meet global standards. Global Reporting Initiative, ILO labour and employment convention and Kyoto Protocol would further raise ESG compliance levels in Indian companies. This will popularise ethical investing in India.

[TOP](#)

7. Global Significance

Socially responsible investment already commands considerable global significance and appears to become even more important in the future. Significant financial powers such as the US, the UK and, to a lesser extent, Canada have already SRI much mainstream status, with the promise of still more growth to come. The increasing need to promote sustainable activities will ensure that this form of investment will have to even role to play in the future of the planet.

Sustainability Characteristics

- Genuine SRI can be a significant force in changing the behavior of companies that might otherwise detract from sustainability
- Funding provided by SRI is likely to lead to extremely important discoveries that promote sustainability
- SRI enables sustainable projects and products to proceed where they otherwise would do insight and innovation
- SRI provides considerable financial encouragement for industry innovation with respect to projects promoting sustainability
- SRI now enables all types of investors to align their financial objectives with their social environmental values and beliefs, rather than forcing them to choose between the two
- Although still only a relatively new form of investment, SRI is quickly becoming a major funds for sustainability

[TOP](#)

8.
- All individuals can be specifically differentiated on various parameters, and depending on the various attributes, their investment decisions are influenced by the following factors. Let us discuss each in detail.
- Required Return

Any investment is made with the primary objective of earning returns on the invested sum. Based on the type of investment returns, returns can have one or more of the following components. In any case, the expected return should be calculated by adding the return on risk-free securities, reward for taking risk and compensation for inflation.

The returns can be of two types, negative cash receipts, capital gain or loss. The gain or loss of capital makes the difference between the purchase price and the selling price of the security. The total return on a security should be calculated by adding all cash receipts to the change in price of the security over a period of time divided by the purchase price of the security. The more the riskiness of a security, the more the return an investor requires from a security.

Risk Taking Capability

Depending on the degree of risk an individual can take, he/she can be classified as a risk taker, risk averter or

Indifferent towards risk. Risk takers usually prefer to invest in risky securities like shares and risk averts invest in risk free securities.

Time Frame

The time duration of investment can vary from a few hours to few months or even several years. Short-term investments are usually considered to be less risky in comparison to long-term investments.

Knowledge and Information

Personal investment is affected by the level of knowledge an individual investor possesses about different investment opportunities. The knowledge of the relationship between risk and return along with the knowledge of industrial sectors, economic indicators, companies' performance analysis techniques, portfolio management techniques, etc., affect the investment decisions of individuals. The sources of information regarding investment avenues also guide the investment decisions.

Taxable Income

The contemporary tax liabilities of an individual and the effect of taxation on the income generated from investment along with its understanding influences an individual's investment decisions.

Safety

In general, safety is associated with the principal amount while the risk is related to the returns expected on the investment. The safety of the funds invested should be the first priority of any investment and then the returns should be in proportion to the level of risk taken.

Availability of Funds

One of the most important factors affecting personal investments is the availability of disposable funds. If the difference between net income and expenditure is either zero or negative, there will be limited amount available for investment. It is only because of the limited availability of funds, that the investor is forced to choose from various mutually exclusive investment opportunities. Each individual should calculate the minimum contingency amount which should be kept as liquid assets and any amount beyond this should then be appropriately invested.

Cash Reversibility

The funds invested should be convertible into cash in the hour of need and this is an important factor which affects personal investments. The degree of reversibility of securities into cash should be considered while making personal investments.

Understanding States of Nature

When the outcome of an activity is known accurately, it is the state of certainty; on the other hand, a state of uncertainty prevails when the outcome of an activity cannot be stated for sure. When there are more than one mutually exclusive outcomes of any activity with a degree of probability attached to each outcome, then it is the state of risk. Risk is defined as the probability of deviation of actual outcome from the expected outcome. It is always good to understand the state of nature prior to investing.

[- TOP -](#)

9. Diversification by investment style: Each investment manager has a special style of investing. It is always best to diversify into funds with different approaches to the market because these funds can produce significantly different results. But what precisely is meant by the term investment style? An investment style is simply a set of rules, guidelines, or procedures followed by fund managers when selecting stocks. Some of such stocks include blue chip companies, cyclical stocks, interest sensitive stocks, high-technology stocks, stocks with strong earnings growth rates, undervalued companies, companies with strong cash flows, etc. Obviously, there are numerous additional categories that might be included. As an investor, he/she must strive to diversify his/her holdings across different investment styles and seek to select only the best performers within each particular category.

Diversification by investment objective: The business risk can be further reduced by adopting this strategy - diversifying across investment objectives. There are different types of funds like industry specific fund (aggressive fund), diversified and balanced fund (moderate fund), bond fund (conservative fund) and money market fund (extremely conservative). Each of these funds has different objectives. An investor should invest a proportion of his/her investible resources among all these funds so that his/her risk is further reduced.

[- TOP -](#)

10. When there are price differentials in spot and derivative markets, equal but opposite positions in both the spot and derivatives markets are taken. These positions will offset each other on expiry, thereby resulting in arbitrage profits which is the price differential between spot and derivatives markets.

On settlement day, the price of the equity shares and their stock futures will converge to the same price, so the fund can reverse its position, that is, sell in the cash market and buy in the future market. For example, say a share is trading in the cash market for Rs.120 and it's one-month future price is Rs.130. One can buy the stock in cash and sell the future.

On expiry, if the share price goes up to Rs.140, one would earn Rs.20 by selling the share and lose Rs.10 by buying the future, leaving with a net profit of Rs.10.

However, if an expiry, the share drops to Rs.100, one would lose Rs.30 by selling the share, and make Rs.20 from buying the future. That would leave with a total gain of Rs.10. It should be remembered that on the expiry date, the spot and future prices converge leaving with no arbitrage opportunity.

Thus, it wouldn't matter which direction the stock price took in the interim period. In other words, it is irrelevant whether the share price has risen or fallen, one would still make the same amount of money. So four transactions have taken place: Buying of stock and selling of futures initially; Selling of stock and Buying of futures in the second leg on expiry.

In this manner, irrespective of the share price, the investor (the fund in this case) earns the spread between the purchase price of the equity shares and the sale price of futures contract.

[- TOP -](#)

11. An important advantage of an arbitrage strategy is that it can act as a safeguard against market volatility as both the buying and selling legs offset each other. The returns in an arbitrage transaction are locked at the time of the transaction. In that respect, the fund offers a relatively low-risk investment option for investors. After all, the problem that most investors have with entering into the equity market is the lack of assured risk-free returns. And this problem does, just that. One peculiar quality of the arbitrage strategy is that it does not participate in the upside or downside of the market, rather it makes a market-neutral investment decision. Thus, even if the market gets convulsed to a large extent, the fund is unlikely to get affected. Given that the arbitrage strategy can insulate the fund from the risk of market volatility, one can expect a degree of stability in arbitrage fund's performance.

Also, increasing volatility in the market is likely to increase the chances of mispricing. Therefore, the returns could be higher as well. So it is expected that at this level of market volatility on either side, arbitrage funds are likely to benefit.

The main disadvantage of this fund is that an arbitrage fund relies exclusively on mis-pricing of securities in the cash and derivatives markets. There could be occasions when mis-pricing opportunities are rare and difficult to spot; it will require an active fund manager to spot these limited opportunities. Also simultaneous trades in different markets increase the transaction cost considerably; this could have an adverse impact on the returns of the fund. However, if the fund manager is not able to find enough arbitrage opportunities, the returns will fall. That is the risk element in these funds. In the absence of profitable arbitrage opportunities, the funds may hold assets in low yielding debt and money market instruments.

[- TOP -](#)

[- TOP OF THE DOCUMENT -](#)