



TATA ASSET MANAGEMENT LIMITED

DEBT FUNDS – AN INTRODUCTION

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 - Risk Factor: Mutual Fund investments are subject to market risks, read all scheme related documents carefully

- Equity funds
- Money market funds
- Debt (Income) funds
- Gilt funds
- Hybrid funds
- Commodity funds
- Real estate funds

Debt instruments are essentially an IOU, with an undertaking as regards interest payment and repayment of principal amount borrowed after a specified period.

Debt instruments are usually considered “safer” than equities because of lower volatility.. They generally have lower return on investment than equities.

WHY INVEST IN DEBT INSTRUMENTS?

- Periodic interest over the life of asset
- Risks are lower
- Loss of Principal unlikely (Sovereign Bonds)
- Receipt of principal on Maturity
- Appeals risk averse investors

SHORT TERM DEBT MARKET & INSTRUMENTS

- Creates Equilibrium by evening out surplus/deficits
- Focal point for RBI (liquidity) intervention
- Access to short term money at reasonable price
- Enabling matching of assets & liabilities
- Avenue for short term funds deployment
- Indicates state of the economy
- Based on liquidity RBI conducts Government Borrowing through auctions - private placement

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- Money Market Securities
 - Treasury Bills
 - Repo & Reverse Repo
 - CBLO
 - Commercial Paper
 - Certificate of Deposit

 - Other Securities
 - Fixed rate bond
 - Floating rate bond
 - Securitized Paper (PTC)

 - Without Securities
 - Call Money, Notice, Term Money
-

INSTRUMENT TYPE – SHORT TERM

Type of Instruments	Security	Period
Treasury Bills	Sovereign Guarantee	91, 182, 364 days
Repo / Reverse Repo	Secured Borrowing / Lending	1- 7 days
CBLO	Secured Borrowing / Lending	Overnight – 14 days
Certificate of Deposit	Promissory Note of Comm. Banks / Financial Institution	15 days – 1 year
Commercial Paper	Unsecured Promissory Note	15 days – 1 year
Call / Notice / Term Money	Unsecured Borrowing	Over Night – 3 Months

LONG TERM DEBT MARKET & INSTRUMENTS

INSTRUMENT TYPE – LONG TERM

Type of Instruments	Security	Period
Govt. Securities	Sovereign Guarantee	1-30 years
Bonds from PSUs	Secured	Above 1 year
Bonds from Financial Institutions	Secured	Above 1 year
Secured Debenture	Mortgage of Assets	Above 1 year
Securitized Debt (Pass Through Certificates)	As per the underlying Asset	Above 1 year

UNDERSTANDING RISKS

Are Debt Funds Risky?

Yes

What are the risks

Interest rate risk

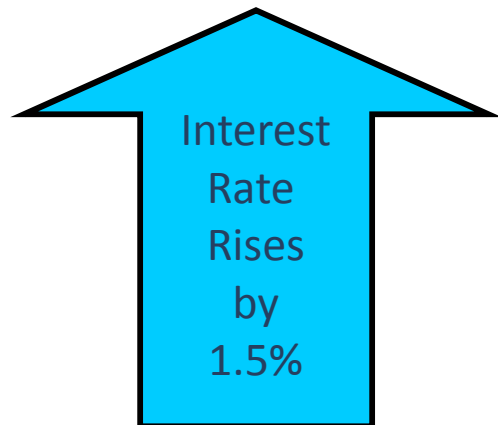
Credit risk

Liquidity risk

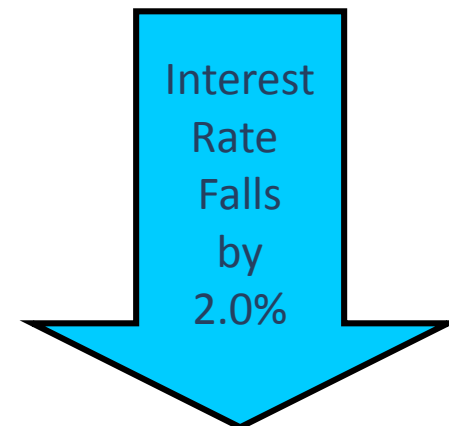
Call risk

Reinvestment risk

Change in price caused due to change in interest rate



Date	1-Jan-05
Coupon	8%
Securities	CG2010
Mkt Value	100
Yield	8.00%



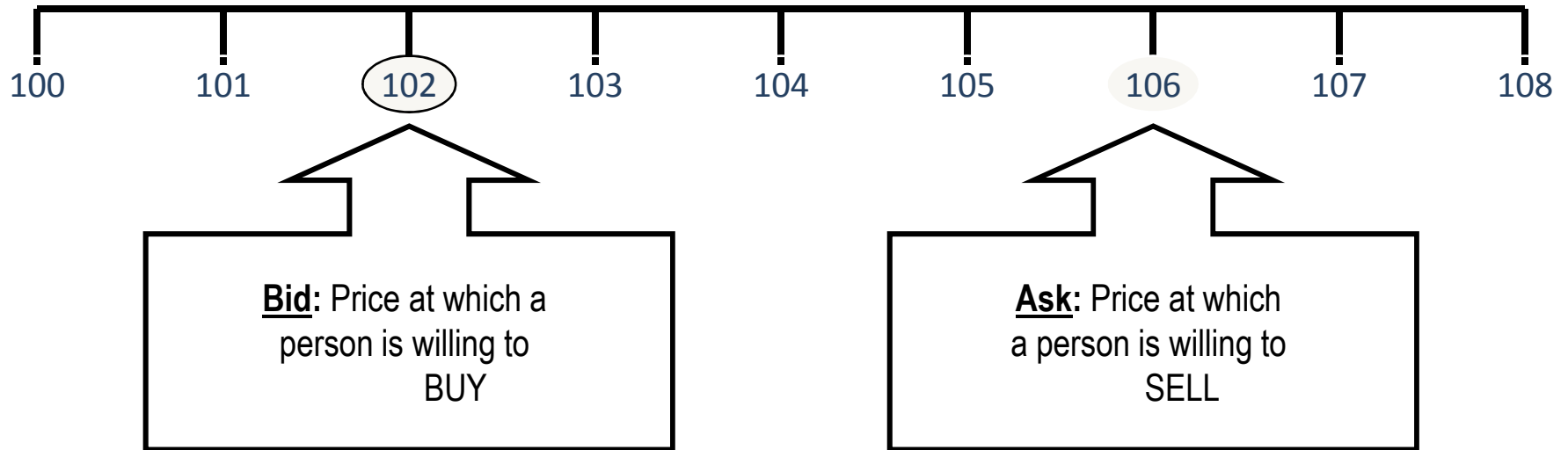
Date	1-Jan-06
Coupon	8%
Securities	CG2010
Mkt Value	98.14
Yield	9.50%

Date	1-Jan-06
Coupon	8%
Securities	CG2010
Mkt Value	112.53
Yield	6.00%

Default	Issuer Fails to meet Debt Obligation in a timely manner
Credit Spread	Risk Premium required for particular corporate bond increases, leading to price reduction in existing bonds
Down-grade	Rating agency could lower the rating, increasing the credit spread, causing the yield to go up & price to come down

- ❑ In India issuance and trading are skewed towards high credit quality bonds
 - ❑ Over 90% of secondary market activity is in AAA or AA+ category
 - ❑ Drop in credit quality leads to significant drop in liquidity
- ❑ Debt funds do not hold low credit quality bonds, even if the yields are attractive

Liquidity Risk



The wider the spread the lower are the chances of a realizing Fair Value of the Bond

It is an important consideration for investor looking to capitalize from market movement

Liquidity Risk is a function of Following factors

Expectation Of interest rate change

Number of Market Maker

Comfort level with Issuer

The risk that arises due to difficulty in selling security in the secondary market.

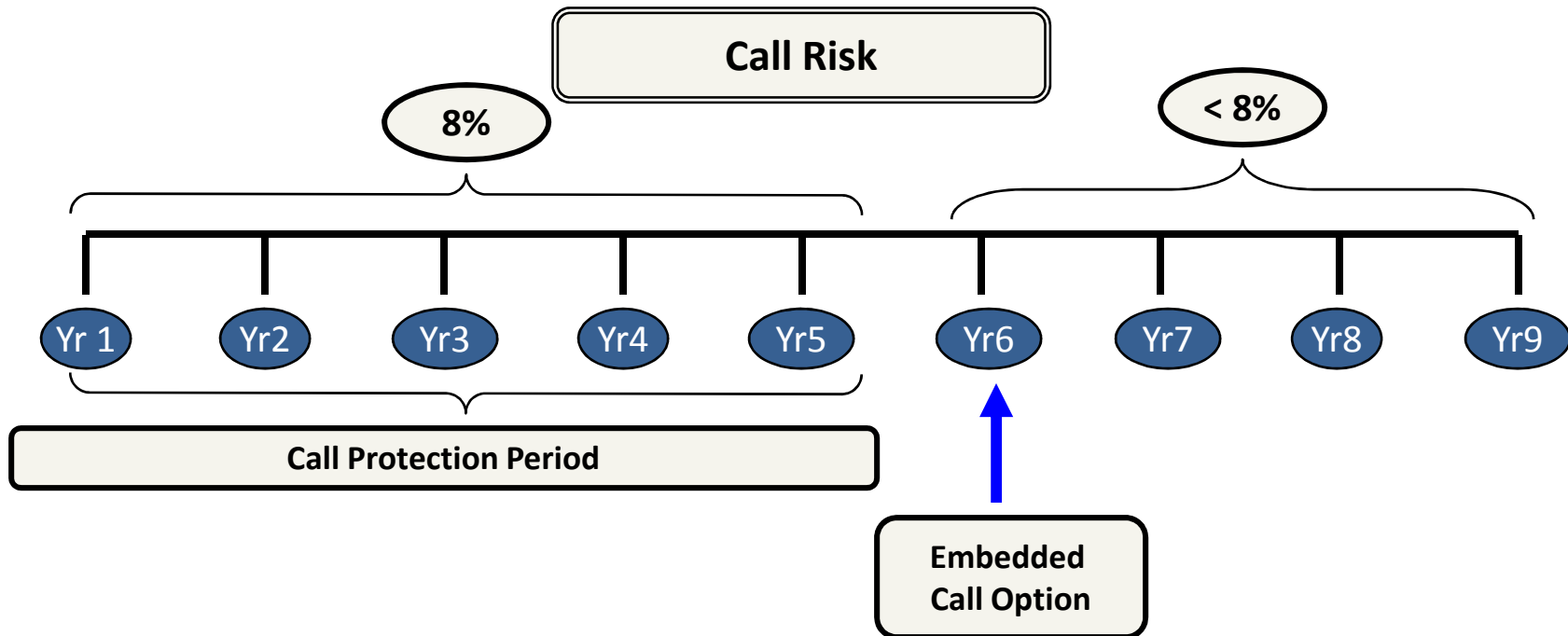
The risk arises due to:-

- Secondary debt market is non vibrant
- Expectation of interest rate change
- Comfort level with the issuer
- Inadequate floating stock
- Banks classification into HTM category

- Bond portfolio's may have bonds that are illiquid
- Fund Manager may have bought the same for yield enhancement
- Valuation risk on these bonds are very high
- Every day the value is arrived at using the CRISIL/ICRA valuer
- Spread takes into account the liquidity premium
- When one tries to sell the bond realized price may be lower than value used till then
- This will create a drop in NAV and affecting existing investors

-
- ❑ Call risk pertain to Callable Bonds designated by the issuer as being subject to payment of the principal earlier than the date of maturity.

 - ❑ The call option to redeem a bond is exercised by the issuer, if interest rates decline, so that the bonds can be reissued at a lower rate of interest.

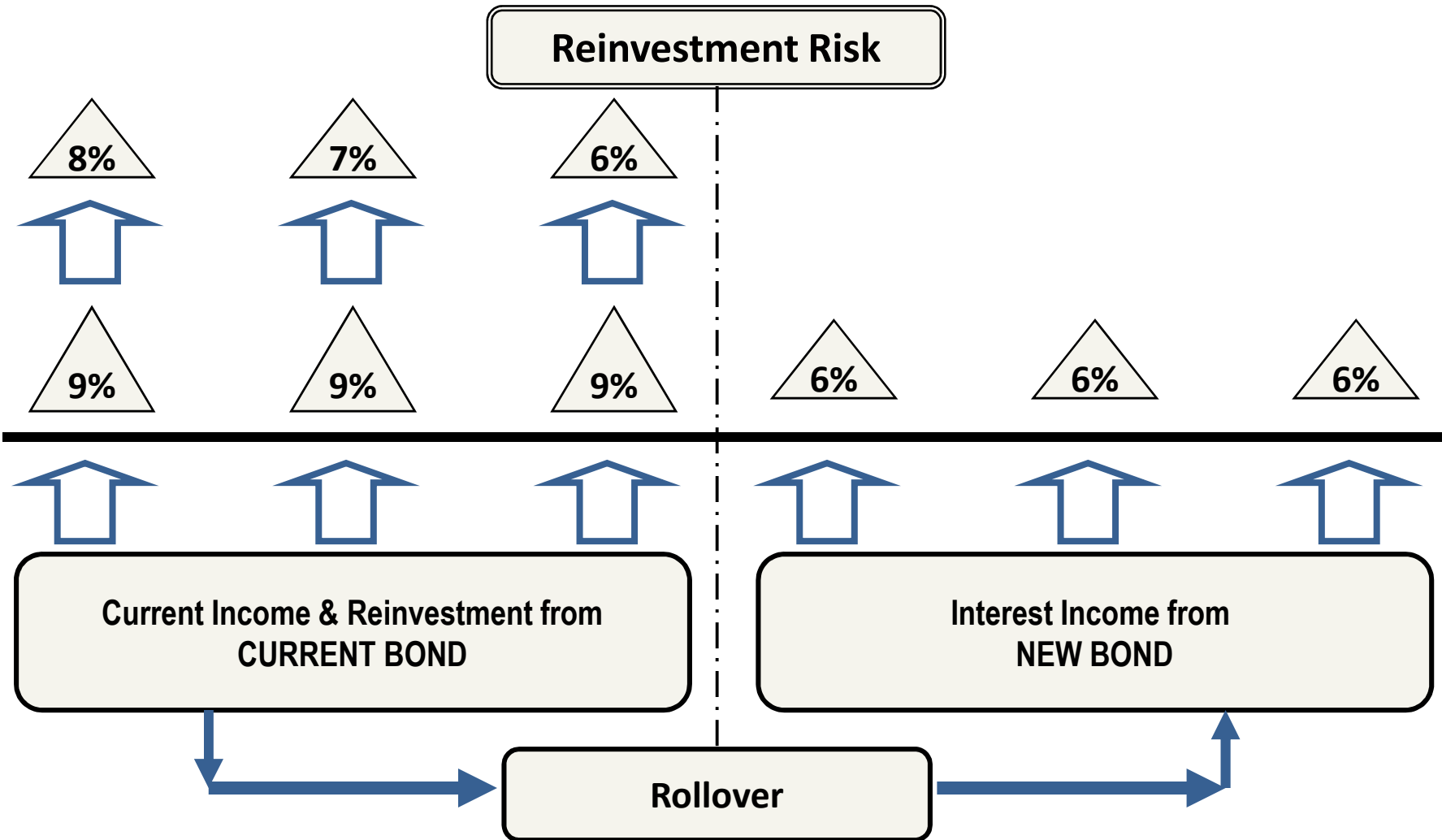


Bonds with call option embedded often pay a higher coupon to compensate for call risk

Issuers exercise call option to take advantage of falling interest rates by re-financing

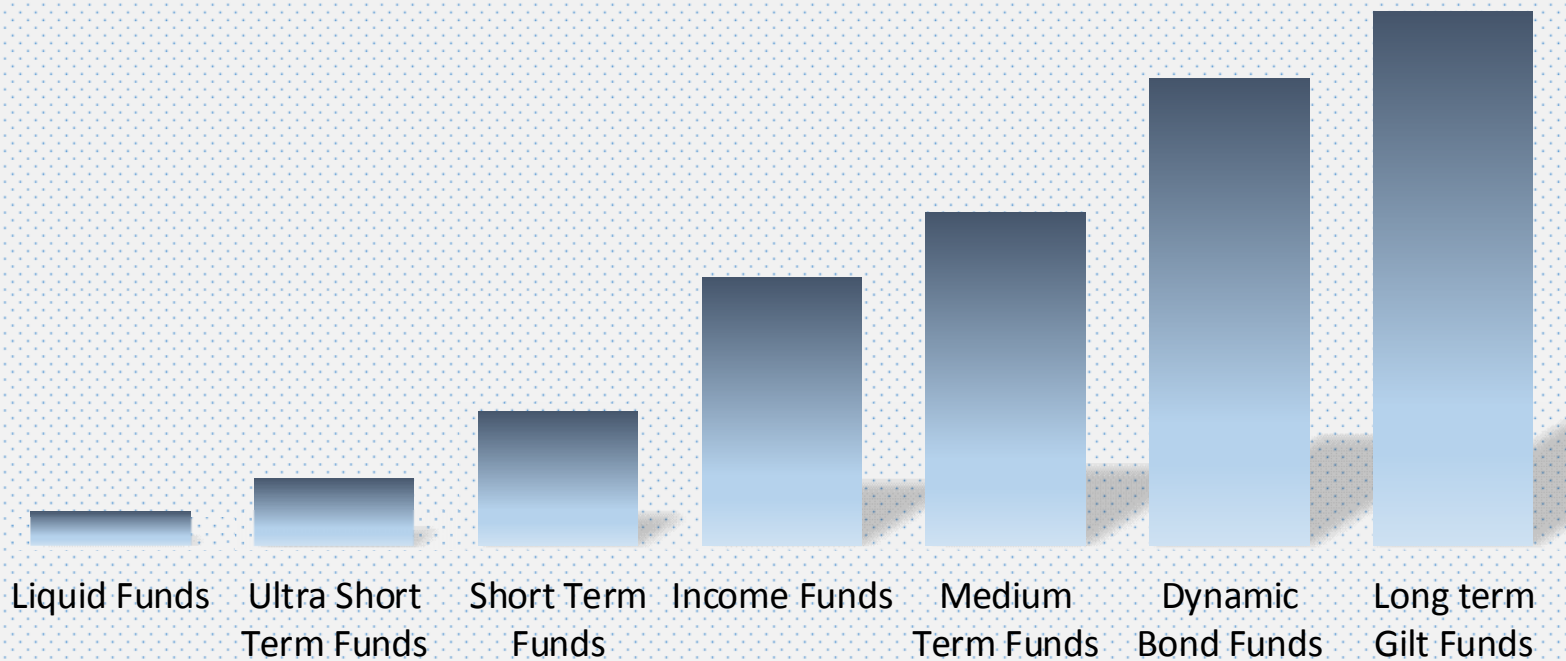
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- The risk that future proceeds will have to be reinvested at a lower interest rate.

 - It is evident during periods of falling interest rates where the coupon payments received are reinvested at rate of interest less than the one invested at the time of purchase of security.



TYPES OF DEBT FUNDS

Typical Interest Risk Profile Debt Funds



Str

Note: The above Risk profiling is for illustration purpose only.

Invests in debt instruments, Lower end of risk, Target at income flow

Types

Income Funds

- Invests in all available types of debts, Less risky

Focused debt funds

- Invests in specific pre-defined sector or type, e.g.. Investing only in Corporate debenture and bonds or Tax free infrastructure or Municipal bonds, Riskier than diversified fund

High yield debt funds

- Invests in 'below investment grade' instruments seeking higher return. Highly risky

Debt funds comes across 2 types of risks.

Credit risk

Credit risk refers to financial stability of a corporate which usually rated by reputed credit rating agencies

Interest rate risk

It is managed dynamically by a fund Manager forecasting the interest rate movements and also of the yield to maturity periods of the portfolio

- May be secured or unsecured
- Money Market Sec - Maturities up to 1 year
- Debt sec - Maturities more than 1 year

Types

- Certificate of Deposit, Commercial Paper, Corporate Debenture, Floating Rate Bonds, Govt. Securities, Treasury Bills, Banks/FI Bonds, PSU Bonds



LIQUID/MONEY MARKET FUND



-
- Invests in securities of short-term nature (less than 90days residual maturities) like TB, CD, CP and Inter-bank call money

 - Highly liquid, Safety of principal

 - Lowest rung in the order of risk level

 - Typical Portfolio average maturity ranges within 90 days

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ULTRA SHORT TERM FUNDS



- Invests in securities of short-term nature (less than 1 yr) like NCDs, TB, CD, CP and Inter-bank call money
- High to moderately liquid, Low risk of principal loss in the short term
- Lower in the order of risk level
- Typical Portfolio average maturity ranges between 3mths to 1yr

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SHORT TERM BOND FUNDS



- ❑ Invests in securities of short-term nature (between 1 to 5yrs) like NCDs, CD, CP and G-secs
- ❑ Moderately liquid, Low risk of principal loss over the medium term
- ❑ Moderate in the order of risk level
- ❑ Typical Portfolio average maturity ranges between 1yr to 3yrs

-
- Return is made of two component-
 - Accrued Interest Income
 - Capital Gain (Loss) due to changes in yield
 - Valuation is done every business day based on market yields
 - Price and yields are inversely related
 - Instruments with shorter tenor have lower MTM risk

-
- Invests in securities of medium to long term nature (between 4 to 15yrs) like NCDs, CD, CP and G-secs with an objective to earn capital appreciation

 - Moderate to low liquidity, Moderate to high risk of principal loss over the short term

 - Moderate to high in the order of risk level

 - Typical Portfolio average maturity ranges between 4yrs to 12yrs

-
- Return is made of three component-
 - Accrued Interest Income
 - Capital Gain (Loss) due to changes in yield
 - Spreads between credit spread

 - Valuation is done every business day based on market yields

 - Price and yields are inversely related

 - Instruments with longer tenor have higher MTM risk

 - Debt funds are made of a bundle of cash flows that are managed and rearranged according to the fund manager's strategies.
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- Invests in securities of medium to long term nature (between 4 to 15yrs) like NCDs, CD, CP and G-secs with an objective to earn predominantly accrual income

 - Moderate to low liquidity, Moderate to high risk of principal loss over the short term

 - Moderate to high in the order of risk level

 - Typical Portfolio average maturity ranges between 4yrs to 13yrs

-
- Invests in corporate securities of short to medium term nature (between 1 to 3yrs) like NCDs, CPs with an objective to earn predominantly accrual income
 - Low liquidity, High risk of principal loss over short to medium term
 - High in the order of risk level
 - Typical Portfolio average maturity ranges between 1yrs to 3yrs



GILT FUNDS



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- Government securities with medium to long-term maturities
 - Issuer being Govt. - low default risk
 - Sensitive to interest rate levels
 - Prices fall when interest rate increases and vice versa

- ❑ Bond fund performance depends on
 - ❑ Quality of the portfolio
 - ❑ Yield of the portfolio
 - ❑ Average Maturity and duration of the portfolio
 - ❑ Ability of the fund manager to dynamically manager and take advantage of interest rate changes

- ❑ During the times of interest rates hardening long term bond funds under perform other debt instruments / funds and vice-versa

INVESTMENT MATRIX

CATEGORY	RISING INTEREST RATE	STABLE INTEREST RATE	FALLING INTEREST RATE
Liquid Funds	Yes	Yes	Yes
Income / Gilt Funds	No	Yes	Yes
FMPs	No	Yes	Yes



PERFORMANCE EVALUATION OF DEBT FUNDS

- Investments are based on expected returns
- Expected return are subjective and ever changing as per market conditions etc
- Expected Return = $\sum (\text{Probability of Return}) \times (\text{Possible Return})$
- For example: = $(0.30)(10\%) + (0.10)(-10\%) + (0.60)(25\%) = 19\%$
- Generally however, Mean returns are generally taken as proxy for forming expectations
- But would the investor be assured that he will get the mean returns as expected
- He may or May not: thus the uncertainty
- This uncertainty is the risk in statistics

- Variance is a measure of deviation from mean
- Variance is calculated as sum of squared deviations from mean divided by $n-1$
- Standard deviation is the variability/deviation of return from the 'mean' value and is calculated as Square root of Variance
- Denotes Spread or Degree of variation and is the primary definition of risk in statistics
- Higher the standard deviation: Higher the risk is the simple rule
- Buy Why Consider Positive Deviation as Risk ?

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- Only the negative variances from the mean considered as risk
 - May not be suitable for analysis for a period when markets were overwhelmingly positive
 - Requires a longer set of data for meaningful result

Systematic Risk

Risk which the entire market is subject to

If invested in markets
No escaping above risk

Measured by **beta**

Unsystematic Risk

Specific to a stock or instrument

Can be reduced by diversification

-
- ❑ One can look at the risk and return separately (Risk Return Matrix)

OR

- ❑ Use some statistical ratios which combine both the features of risk and return and give a composite figure which give “risk adjusted returns’ per unit of risk’

Ratio	Fomula			Interpretation	
Shape	Average Scheme Return - Risk Free Rate of Return	Divided by	Standard Deviation	Return per unit of risk	Higher the better
Sortino			Semi Standard Deviation	Return per unit of downside risk	
Treynor			beta	Reward to volatility	

- Variation of Sortino - Replacement of Risk Free Rate with Minimum Accepted Return and Std Div with downside deviation to Minimum Accepted Return

what about alpha?

Jensen's Alpha: Mean Return of Y – Beta * Mean return of market

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- ❑ Square of correlation coefficient
 - ❑ Percentage/proportion of change in one variable that is related to/predictable from change in the other variable – Predictive power of a model
 - ❑ **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



RESULTS FROM STATISTICAL ANALYSIS DEPEND UPON



-
- Period of Analysis (Min 1 year recommended)
 - Frequency of NAV picking (daily, weekly, monthly etc.)
 - Appropriateness of benchmark used
 - Risk free rate of return
 - 'Comparison with *'relevant peers'*

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- Information Ratio (IR) calculates risk adjusted out-performance i.e. relative return per unit of risk
 - Return per unit of risk undertaken for the alpha component

 - Formula is = Active Annualised Returns/Annualised standard deviation of monthly active returns (Tracking Error)

 - Where active returns = Fund returns – benchmark returns

 - Interpretation – Higher the better - If IR = 0 then no real value addition by active fund management. An information ratio of 0.5 is considered good

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- Fund Size
 - Fund Age
 - Relative yields,
 - Loads
 - Average Maturity
 - Peer group comparison
 - Tax implication

INVESTMENT PROCESS AND APPROACH

-
- Objectives
 - Accrual / regular earnings
 - Capital Gains
 - Accruals and capital gains

 - Philosophy
 - Safety
 - Liquidity
 - Returns
-

-
- Focus on Fundamentals
 - Macro & Micro
 - Exposure
 - Quantitative and Qualitative filters
 - Liquidity
 - Market depth & Positioning on liquidity – yield curve
 - Tenure
 - Different Strategies, Tactical plays, holding horizon
-

-
- Economic & Fundamental Factors
 - Top Down / Bottom up approach
 - Relative valuation (Rich / Cheap)
 - Technical Factors
 - Credit research inputs
 - Investment Universe

-
- Objective and Strategy for individual fund
 - Regulatory limits
 - Internal Risk Management Guidelines
 - Soft compartments
 - Rebalancing
 - Adherence to limits and continuous surveillance

KEY CHALLENGES – LARGELY AROUND LIQUIDITY

- ❑ Liquidity – Open ended structure of the debt funds rely on a liquid market
- ❑ Debt portfolio largely skewed towards G-sec as they are more liquid
- ❑ Preference of large players such as Banks to hold securities in HTM category limits the liquidity in G-sec
- ❑ Liquidity in corporate bond market very limited, only to AAA PSU bonds, diversification of portfolio a major challenge
- ❑ Absence of an active CDS market limits credit risk appetite
- ❑ Lack of retail participation , Investor base dominated by Institutional Investors, with short investment horizon Absence of an active CDS market limits credit risk appetite



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