

✓ TREASURY RISK MANAGEMENT

— ONE-LINER DIGEST

(Market risk • Credit risk • Liquidity risk • Interest rate risk • Currency risk • VaR • Duration • Controls • Limits • Exposure management)

● NATURE OF TREASURY RISK

1. Treasury risk arises because treasury profits depend on market opportunities, making **market risk inherent in each deal**.
2. Treasury also manages **balance-sheet risks** arising in other departments.
3. Treasury business carries **high leverage**, making small price moves cause disproportionately large gains/losses.
4. Large transactions executed solely by Treasurer magnify potential loss if judgment fails.
5. Treasury losses materialize **rapidly**, as deals are **irrevocable** upon confirmation.
6. Open positions amplify risk since price can move adversely between buy-leg and sell-leg.
7. **Volatility** refers to magnitude of price fluctuations in currency or interest rates.

● LIQUIDITY & FUNDING RISKS

8. Liquidity risk occurs when cashflow mismatches cannot be bridged on settlement date.
9. Funding risk arises when treasury must borrow at **any cost** to meet settlements.
10. Liquidity risk often converts into **interest rate risk** because emergency borrowing increases cost.

● ORGANISATIONAL CONTROLS

11. Treasury is structured into **Front Office (dealing)**, **Back Office (confirmation/settlement)**, and **Mid-Office (risk/MIS)**.
12. Back office ensures **independent deal confirmation**, market-rate validation, and compliance with limits.
13. Mid-office ensures adherence to **Board-approved policies**, limits, and risk reports.

● TRADING CONTROLS

14. **Deal size limit** caps maximum value of each trade done by a dealer.
15. **Open position limits** cap unmatched buy/sell exposures that create market risk.
16. **Daylight limits** restrict intraday open positions; **overnight limits** govern positions carried to next day.
17. **Currency-wise limits** restrict exposure per currency and also as an aggregate translated into INR.
18. Dealers cannot hold positions indefinitely, as loss probability increases with time.

● STOP-LOSS LIMITS

19. Stop-loss limits cap losses **per deal/day/month/year** and force compulsory square-off when hit.
20. Stop-loss prevents dealers from waiting for market reversal and escalating losses.

● EXPOSURE CEILING LIMITS

21. Exposure limits protect treasury from **counterparty credit risk**.

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22. Default risk arises when borrowing bank fails to repay money market lending or repo funds.	34. Currency risk reflects exchange rate volatility, driven by inflation, money supply & market conditions.
23. Settlement risk occurs when counterparty fails to deliver security/FX because of bankruptcy or time-zone mismatch.	<hr/> <p> VALUE AT RISK (VaR)</p>
24. FX settlement risk is higher when INR leg settles locally and FC leg settles abroad (e.g., USD in New York).	35. VaR measures maximum potential loss over a time horizon at a given confidence level under normal conditions.
25. Counterparty limits depend on net worth, reputation, rating, and track record .	36. Example: VaR of 45 bps at 95% CL means only 5% chance price moves beyond 45 bps tomorrow.
26. Limits vary by tenor —longer exposure means higher risk → lower limit.	37. VaR is based on volatility , i.e., standard deviation of historical price movements.
27. Limits are also applied to brokers to avoid concentration though they are intermediaries.	38. Parametric VaR uses sensitivity (delta, gamma, vega) to compute potential loss.
28. Exposure limits must be reviewed annually and monitored by Back-office/Mid-office.	39. Historical VaR uses past return distribution to estimate worst losses.
<hr/> <p> TYPES OF TREASURY RISKS</p>	40. Monte Carlo VaR simulates thousands of random market scenarios.
29. Treasury faces Market Risk (price movement) and Credit Risk (counterparty default).	41. VaR is most relevant for overnight to short-term exposure measurement.
30. Market risk includes liquidity risk, interest rate risk, and currency risk.	<hr/> <p> DURATION & INTEREST RATE SENSITIVITY</p>
31. Interest rate risk = rise in cost of funds or fall in yield on assets due to interest rate changes.	<p> MACAULAY DURATION</p>
32. Bond values fall when interest rates rise because of inverse price–yield relationship.	42. Duration is the weighted average time needed to recover the bond's price via cashflows.
33. Interest rate risk arises when asset-liability maturities mismatch .	43. Duration = time at which the investor is immune to interest rate changes.
	44. Duration < maturity for all coupon bonds; = maturity only for zero-coupon bonds.
	45. Duration of a perpetual bond = $(1 + r) / r$, where r = current yield.

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46. Higher coupon → **lower duration**; lower coupon → **higher duration**.

47. Higher YTM → **lower duration** (inverse relation).

48. More frequent coupon payments → **lower duration**.

49. Duration shrinks as bond approaches maturity.

50. Longer duration = higher interest rate risk for that bond or portfolio.

MODIFIED DURATION (MD)

51. Modified Duration = **Macaulay Duration / $(1 + r)$** .

52. $r = \text{YTM} / \text{number of coupon compounding periods per year}$.

53. % Price change of bond $\approx MD \times \text{change in yield}$.

54. Price–yield effect is inverse: yield $\uparrow \rightarrow$ price \downarrow by $(MD \times \Delta y)$.

55. MD directly quantifies **price sensitivity to yield changes**.

YIELD-TO-MATURITY (YTM)

56. YTM is the **internal rate of return** earned if bond is held to maturity.

57. YTM equals discount rate that sets **PV of cashflows = current market price**.

58. YTM does not measure volatility; bonds with similar YTM may have different price sensitivities due to maturity/coupon.

FULL-CHAPTER ULTRA-REVISION (10 LINES)

59. Treasury risk is dominated by **market volatility, high leverage, and rapid loss crystallisation**.

60. Internal controls: **Front–Back–Mid office segregation**, independent confirmation & MIS.

61. Limits: **deal size, open positions, daylight & overnight limits, stop-loss & currency-wise caps**.

62. Exposure ceilings manage **default risk & settlement risk** based on counterparty strength.

63. Market risk includes **liquidity, interest rate, and currency risk** arising from mismatches.

64. Interest rate movement impacts all securities because of **inverse price-yield behavior**.

65. VaR quantifies **worst expected loss** at given confidence level using volatility.

66. Duration measures **weighted maturity**, determining sensitivity to rate changes.

67. Modified Duration gives **direct price sensitivity per basis point change**.

68. YTM measures **return**, not risk, and cannot indicate volatility or duration differences.