## Market Risk

1.) Standardized Approach
→ Allowed by RBI
→ Formula based and defined by the regulator

2.) Internal Models Approach
→ Generally uses VaR to estimate capital requirements

* What type of market risks?

1.) Foreign exchange risk: Investments in non-INR currencies, FX derivatives
2.) Interest rate risk: Bonds, debentures, interest rate derivatives
3.) Equity risk: Investments in stocks

HFT: Held for trading
AFS: Available for sale
HTM: Held to maturity (Exempt from market risk)

* Interest rate risk

Specific charge
⇓
Risks pertaining to the individual security

General market charge
⇓
Risks to which all securities are exposed

1.) Debt instruments:
Total market risk capital charge (AFS):
Higher of
a.) Specific risk charge computed notionally for AFS securities treating them as HFT
+ General Market risk charge

b) Alternate capital charge computed notionally for AFS by treating it as part of banking book

* General Market Risk Charge

a) Net short/long position ⇐ Abs (long - short) across trading book
b) charge for options ⇐ (Ignore)
c) Vertical disallowance (a % of the matched positions)
d) Horizontal disallowance (a % of unmatched positions)

* Disallowances

1) Split exposures as per currency
2) Compute the long & short position in each currency
3) Multiply the yields given by the regulator with the exposure in each instrument
4) Slot exposures into the regulatory time bands & zones
5) Compute capital charge as prescribed

* Equity Risk

→ Applied on latest value of equity holding

Specific risk charge
↓
11.25% or as per rating, whichever is higher

General market risk charge
↓
9% of equity position

## *. FX Risk charge

1.) Compute net position in each currency
→ Take net spot position [assets - liabilities]
→ Take net forward position (receivables - payables) [Forward notional, currency swap legs]
→ Add any guarantees
→ Net delta-based equivalent of book of FX options

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9% capital charge

## * Internal models approach

→ Governance & Policy
1.) Who is responsible for model methodology
2.) Who will manage the models
3.) Segregation of responsibility
4.) Standard operating procedure
5.) Approval by Board & mgmt
6.) Approval by regulator
→ Actual development of models
1.) Tons of data available
2.) Fit probability distributions to investment prices
3.) Back-test & validate
4.) Decide on metric for measuring market risk
5.) VaR, ES, Tail VaR, etc

→ Decide & agree on risk parameters
→ Obtain approval from regulator
→ Use for market risk capital charge computation