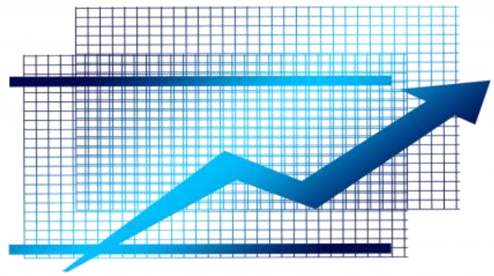
Interest Rate Risk Management



Concept

Interest rate risk is the risk where changes in market interest rates might adversely affect a bank's financial condition. The management of Interest Rate Risk should be one of the critical components of market risk management in banks. The regulatory restrictions in the past had greatly reduced many of the risks in the banking system. Deregulation of interest rates has, however, exposed them to the adverse impacts of interest rate risk.

Impact of IRR

The immediate impact of changes in interest rates is on the Net Interest Income (NII). A long term impact of changing interest rates is on the bank's net worth since the economic value of a bank's assets, liabilities and off-balance sheet positions get affected due to variation in market interest rates.

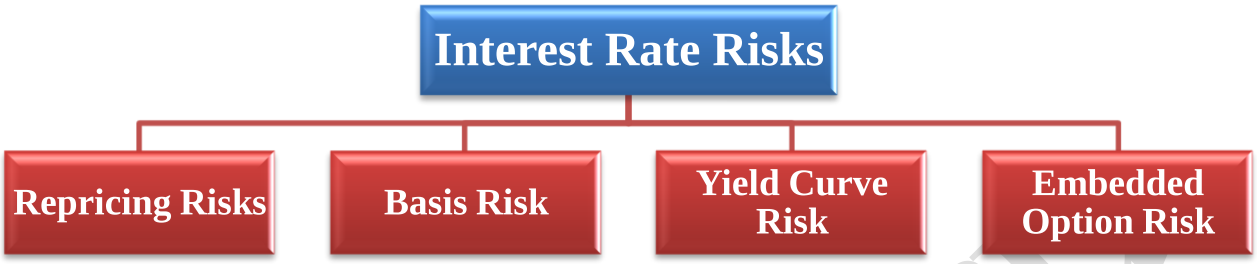
The Net Interest Income (NII) or Net Interest Margin (NIM) of banks is dependent on the movements of interest rates. Any mismatches in the cash flows (fixed assets or liabilities) or repricing dates (floating assets or liabilities), expose bank's NII or NIM to variations. The earning of assets and the cost of liabilities are closely related to market interest rate volatility.

The interest rate risk when viewed from these two perspectives is known as 'earnings perspective' and 'economic value' perspective, respectively.

Management of interest rate risk aims at capturing the risks arising from the maturity and repricing mismatches and is measured both from the earnings and economic value perspective.

a) **Earnings perspective** involves analyzing the impact of changes in interest rates on accrual or reported earnings in the near term. This is measured by measuring the changes in the Net Interest Income (NII) or Net Interest Margin (NIM) i.e. the difference between the total interest income and the total interest expense.

b) **Economic Value perspective** involves analyzing the changes of impact of interest on the expected cash flows on assets minus the expected cash flows on liabilities plus the net cash flows on off-balance sheet items. It focuses on the risk to net worth arising from all repricing mismatches and other interest rate sensitive positions. The economic value perspective identifies risk arising from long-term interest rate gaps.



1. **Repricing Risks:** This type of risk arises from timing differences in the maturity (for fixed rate) and repricing (for floating rate) of bank assets, liabilities and off-balance-sheet (OBS) positions. While such repricing mismatches are fundamental to the business of banking, they can expose a bank's income and underlying economic value to unanticipated fluctuations as interest rates vary.

2. **Basis Risk:** It arises from imperfect correlation in the adjustment of the rates earned and paid on different instruments with otherwise similar repricing characteristics, when interest rates changes, these differences can give rise to unexpected changes in the cash flows and earnings spread between assets, liabilities and OBS instruments of similar maturities or repricing frequencies.

3. **Yield Curve Risk:** Repricing mismatches can also expose a bank to changes in the slope and shape of the yield curve. Yield curve risk arises when unanticipated shifts of the yield curve have adverse effects on a bank's income or underlying economic value. For instance, the underlying economic value of a long position in 10-year government bonds hedged by a short position in 5-year government notes could decline sharply if the yield curve steepens, even if the position is hedged against parallel movements in the yield curve.

4. **Embedded Option Risk:** This risk arises from the options embedded in many bank assets, liabilities and OBS portfolios. Formally, an option provides the holder the right, but not the obligation, to buy, sell, or in some manner alter the cash flow of an instrument or financial contract. Options may be stand alone instruments such as exchange-traded options and over-the-counter (OTC) contracts, or they may be embedded within otherwise standard instruments. While banks use exchange- traded and OTC-options in both trading and non-trading accounts, instruments with embedded options are generally most important in non-trading activities. They include various types of bonds and notes with call or put provisions, loans which give borrowers the right to prepay balances, and various types of non-maturity deposit instruments which give depositors the right to withdraw funds at any time, often without any penalties.