Gap Analysis

Measure of Interest Rate Risk

- Gap analysis
  - Negative gap - exposed to an increase in interest rates.
  - Positive gap - exposed to a decline in interest rates.

- Loss possibility
  - Estimate the change in the value of assets and liabilities within each time bucket for a bank for a change in interest rate.
  - Calculating the aggregate difference between the assets and liabilities represents the loss in net worth a bank could incur if interest rates moved unexpectedly.

Sample Bank Balance Sheet

Liabilities			Assets	
Capital	20000		Reserves	85000
Borrowings	10000		Advances	588000
Short term deposits	550000		Investments	100000
Long term deposits	200000		Fixed Assets	7000
Total	**780000**		**Total**	**780000**

Sample Income Statement

		%
Interest Income	52332	8.90%
Investment income	5500	5.50%
Total income	57832	8.41%
Interest expense		
Short term	30800	5.60%
Long term	25000	12.50%
Total expenses	55800	7.44%
Net Income	2036	**(Spread) 0.97%**
Other income	5000	
Other expense	2000	
Income before tax	5036	

Gap Analysis

Liabilities			**Assets**	
Rate Sensitive Liabilities			**Rate Sensitive Assets**	
Fixed Rate Liabilities			**Fixed Rate Assets**	
Total			**Total**	

Funds Gap

- Funds gap = Risk Sensitive Assets (RSA) – Risk Sensitive Liabilities (RSL).
- A positive gap shows financing of rate sensitive assets by fixed rate liabilities.
- A negative gap shows fixed rate assets financed by rate sensitive liabilities.

Rate Sensitive Assets / Liabilities

- Assets / Liabilities repriced within a short period of time.

- The short time duration can be defined as 1 year.

Gap Analysis

Liabilities			**Assets**	
Rate Sensitive Liabilities			**Rate Sensitive Assets**	
Short term deposits	550000		Advances	145000
Fixed Rate Liabilities			Investments	100000
Borrowings	10000		Reserves	85000
Long term deposits	200000		**Fixed Rate Assets**	
			Advances	443000
Capital	20000		Fixed Assets	7000
Total	**780000**		**Total**	**780000**

Gap Analysis

Liabilities			**Assets**	
Rate Sensitive Liabilities			**Rate Sensitive Assets**	
Short term deposits	550000		Advances	145000
			Investments	100000
			Reserves	85000
			Fixed Rate Assets	
			Advances	220000
Fixed Rate Liabilities			**Fixed Rate Assets**	
Borrowings	10000		Advances	223000
Long term deposits	200000			
Capital	20000		Fixed Assets	7000
Total	**780000**		**Total**	**780000**

Funds Gap

- Total Rate Sensitive Assets (RSA) 330000
- Total Rate Sensitive Liabilities (RSL) 550000
- Funds Gap 220000 (Negative Gap)

Interest Rate Change and Impact on Income

- Change in net interest income = Change in rate x Gap.
- Conservative Bank
  - Maintains positive gap
  - Gains from increase in interest rate
- Aggressive Bank
  - Maintains negative gap
  - Gains from decrease in interest rate

Other Representations of Gap

$$\text{Relative Gap} = \frac{\text{RSA} - \text{RSL}}{\text{Total Assets}}$$

$$\text{Gap Ratio} = \frac{\text{RSA}}{\text{RSL}}$$

Representations of Gap

Asset Sensitive Bank

- Positive Gap Amount
- Positive Relative Gap

- Gap Ratio < 1

Liability Sensitive Bank

- Negative Gap Amount
- Negative Relative Gap
- Gap ratio > 1

Positive Gap

- Rate Sensitive Assets is large
- Asset Sensitive
- Losses if rates fall (NIM will decline)
- Favourable situation when the expectation is rising rates of interest

  - Management action will be to increase RSA and/ or reduce RSL

  - Extend liability maturities and/or shorten asset maturities

Positive Gap

- Not a favourable situation when the expectation is falling rates of interest

  - Management action will be to increase RSL and/or reduce RSA

  - Extend asset maturities and/or shorten liability maturities

Negative Gap

- Rate Sensitive Liability is large
- Liability Sensitive
- Losses if rates rise (NIM will decline)
- Favourable situation when the expectation is falling rates of interest

  - Management action will be to increase RSL and/or reduce RSA

  - Extend liability maturities and/or shorten asset maturities

Negative Gap

- Not a favourable situation when the expectation is rising rates of interest

  - Management action will be to increase RSA and/or reduce RSL

  - Extend asset maturities and/or shorten liability maturities