

% Change in Price in terms of Mod D and Convexity

$$\% \text{ Change in Price} = -\left(\frac{\Delta y}{y}\right)(\text{Mod D}) + \left(\frac{\Delta y}{2}\right)^2 (\text{convexity})$$

Assumptions of Redington Immunization:

- Flat yield curve
- Parallel shifts in the yield curve only
- Protects against small changes in  $i$

Conditions for Redington Immunization:

- $PV_A = PV_L$
- $P'_A = P'_L$
- $P''_A > P''_L$

Assumption of Full Immunization:

- Flat yield curve

Reason of Full Immunization:

- Protects against shifts of any size in the yield curve

Conditions for Full Immunization:

- $PV_A = PV_L$
- $P'_A = P'_L$
- Asset Payments before and after each liability payments.

Why Rebalance? (1 conditions)

- Gives more protection, but costs more.

Problems with Dedication

- Assets are sometimes difficult to predict.
- Liabilities are often just estimates.
- May not achieve max<sup>m</sup> yield
- Difficult to find assets to exactly match liabilities.