

### Present value and yield

$$\text{present value} = \frac{\text{amount of future cashflow}}{1 + \left( \text{interest rate} \times \frac{\text{days}}{\text{year}} \right)}$$

$$\text{Yield} = \left( \frac{\text{cashflow at the end}}{\text{cashflow at the start}} - 1 \right) \times \frac{\text{year}}{\text{days}}$$

### Straight-line interpolation

$$\text{Interpolated rate} = \text{the first rate} + \left( (\text{the second rate} - \text{the first rate}) \times \frac{\text{days between the first date and the required date}}{\text{days between the first date and the second date}} \right)$$

### Effective Rate

$$\text{Effective rate} = \left( 1 + \left( \text{nominal rate quoted} \times \frac{\text{days}}{\text{year}} \right) \right)^{\left( \frac{365}{\text{days}} \right)} - 1$$

### Fixed deposits

$$\text{Interest earned} = \text{principal amount} \times \text{interest rate} \times \frac{\text{days}}{\text{year}}$$

$$\text{Maturity proceeds} = \text{principal amount} + \left( \text{principal amount} \times \text{interest rate} \times \frac{\text{days}}{\text{year}} \right)$$

### Certificate of deposit

$$\text{Maturity proceeds} = \text{face value} \times \left( 1 + \left( \text{coupon rate} \times \frac{\text{days from issue to maturity}}{\text{year}} \right) \right)$$

$$\text{Amount paid} = \frac{\text{maturity proceeds}}{\left( 1 + \left( \text{yield} \times \frac{\text{days from settlement to maturity}}{\text{year}} \right) \right)}$$

### Discount Instruments

$$\text{Amount paid} = \frac{\text{face value}}{\left( 1 + \left( \text{yield} \times \frac{\text{days from settlement to maturity}}{\text{year}} \right) \right)}$$

### FRAs

$$\text{FRA settlement amount} = \text{notional principal amount} \times \frac{(\text{FRA rate} - \text{LIBOR}) \times \frac{\text{days in FRA period}}{\text{year}}}{\left( 1 + \left( \text{LIBOR} \times \frac{\text{days in FRA period}}{\text{year}} \right) \right)}$$

### Forward outright and swaps

$$\text{Forward rate} = \text{spot} \times \frac{\left( 1 + \left( \text{interest rate}_a \times \frac{\text{days}}{\text{year}_a} \right) \right)}{\left( 1 + \left( \text{interest rate}_b \times \frac{\text{days}}{\text{year}_b} \right) \right)}$$

$$\text{THBFX} = \left\{ \left[ \left( \frac{\text{Spot rate} + \text{Forward Points}}{\text{Spot Rate}} \right) \times \left( 1 + \frac{\text{USD rate} \times \text{days}}{360} \right) \right] - 1 \right\} \times \frac{365}{\text{days}} \times 100$$