

CIRE Fixed Income Yields

Bond pricing, duration, convexity, day-count, yield curves. Element 4 + the fixed-income outcomes in Element 7.

Pricing + yield

Bond price

$$P = \sum_{t=1}^n \frac{C}{(1+YTM)^t} + \frac{F}{(1+YTM)^n}$$

Discount each cash flow at YTM

Current yield

annual coupon / current price
Ignores capital gain/loss to maturity

YTM rule of thumb

$$(C + (F - P)/n) / ((F + P)/2)$$

Approximation; breaks down for long n

YTC (yield to call)

Same as YTM but using call date + call price
Use $YTW = \min(YTM, YTC)$ when callable

Duration + convexity

Modified duration

$\frac{1}{1+Y} \times \frac{\Delta P}{P}$
First-order; misses convexity for big ΔY

Macaulay duration

Weighted average time to cash flow
Used in immunization

Convexity adjustment

$\frac{1}{2} \times \frac{\Delta^2 P}{P} \times (1+Y)^2$
Use for >50 bp shifts

Day-count + settlement

- T+1 settlement since May 27, 2024 for equities and most bonds
- Corporates use 30/360 day-count for accrued interest
- Government bonds use actual/actual day-count

Yield curve shapes

- Normal: long rates above short rates (typical)
- Flat: long rates = short rates (transition signal)
- Inverted: short rates above long rates (recession indicator)
- Humped: medium-term rates highest

Spreads

- G-spread: yield over interpolated government curve
 - Z-spread: spread over zero-coupon government curve
 - OAS: option-adjusted spread, removes embedded option value
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Read the live cheat sheet

Worked examples, callable bonds, credit ladder.

<https://ciroexam.ca/cheat-sheets/cire-fixed-income-yields>
