Chapter 3

Measuring Yield

Computing Yield or IRR on an Investment - promised yield

YTM on Zeros

Effective Annual Rates

\[ \text{EAR} = (1 + \frac{i}{m})^m - 1 \]

Current Yield/Yield to Maturity/Capital Gain/Loss Yield

Bond Equivalent Yield

Yield to Call

Call Schedule

Yield to First Call
Yield to Next Call
Yield to First Par Call
Yield to Refunding

Yield to Put

Yield to Worst - Minimum of all Yields

Amortizing Securities

Cash Flow Yield
Coupon Interest, Scheduled Principal Repayment, Prepayments

Yield to Maturity for a Portfolio
Yield Spread Measures for Floating-Rate Securities

Coupon Rest Formula - Reference Rate + Quoted Margin

Spread for Life
Adjusted Simple Margin
Discount Margin

Determine cash flows assuming reference rate doesn’t change
Select a margin
Find present value using reference + margin
Compare PV with current bond price
   If PV = Price, assumed margin is discount margin
   If PV ≠ Price, try different margin
For bond selling at par, discount margin is spread over reference

Assumes reference rate doesn’t change and ignores caps and floors

Reinvestment Rate Risk

5-year, 10% coupon bond selling at par
Bank offer 10%, semi-annual rate on 5-year CD

Investment $1,000

Bank: $FV = 1,000 \times [(1 + .05)^{10} - 1] = 1,628.89

Bond:
   Reinvest at 0% $FV = 50 \times 10 + 1,000 = 1,500$
   Reinvest at 2.5% $FV = 50 \times [(1 + .25)^{10} - 1] / .025 + 1,000 = 1,560.17$
   Reinvest at 5% $FV = 50 \times [(1 + .05)^{10} - 1] / .05 + 1,000 = 1,628.89$
   Reinvest at 7.5% $FV = 50 \times [(1 + .075)^{10} - 1] / .075 + 1,000 = 1,707.35$

Reinvestment Risk is great for amortizing securities since there is likely more cash flows to reinvest

Total Return = $FV$ of Cash Flows under assumed reinvestment rate/Price

Promised Dollar Return = $FV$ of coupons at YTM - Coupons + Capital Gain/Loss