Cheatography

Coec 371 Cheat Sheet

by Spazztaco via cheatography.com/95917/cs/20777/

Formula

Price of Longer Maturity Coupon Paying Bond

 $P = c/r^*(1 - 1/(1+r)^t) + ParValue/(1+r)^t$

Price of Zero Coupon Bond

 $P = ParValue/(1+r)^t$

Price of Short Maturity Coupon Paying Bond

 $P = Coupon/(1+r)^t + (ParValue+Coupon)/(1+r)^t$

Nominal Growth rate of Cash Flows

i = (1+GrowthRate)*(1+InflationRate) - 1

Real Return Adjusted for Inflation

r = (1+i)/(1+Inflation)

Present Value of Cash Flows

 $PV = Cash * ((1+i)^{t-1}/(1+DiscountRate)^{t-1} + (1+i)^t/(1+DiscountRate)^t + ...)$

Computing YTM

Rates = Flat; Rates = YTM.

Rates =/= Flat; Solve for Price, Swap Rates for Y and solve for Y

Discount Factors (D) for Zero Coupon Bonds

Price/100

Discount Factor (D) for Coupon Paying Bonds

Price = C*D[1] + (ParValue+C)D[2]

Calculation for Spot Rates Using Discount Factor

r = (1/D)/T - 1

For semiannual multiply answer by 2

Calculating Price with Discount Rates

P = C*D[1] + C*D[2] + (ParValue+C)D[3]

For semiannual C/2

Macaulay Definition

 $D = (1+r)/r - \{[(1+r) + T(C-R)] / (C[(1+r)^T - 1] + r)\}$

Where R = Flat Rate Or YTM.

When Semiannual r/2 and c/2, divide final answer by 2

Modified Duration

 $D^* = D/1 + r$

Formula (cont)

 $P[1]^*(1+EAR)^T = P[T]$

Converting Monthly APR to Semiannual

(1+APR/12)⁶ -1

Calculating for Spot Rates using Price Formula

Price = ParValue/(1+r) then solve for r

Descriptive

Constructing an Arbitage

e.a

Year $1 \Rightarrow 100x[1] + 5x[2] = 7 \{x[3]\}$

Year $2 \Rightarrow 105x[2] = 107 \{x[3]\}$

Solve for x[1] and x[2]

Computing Realized Returns assuming Dividend Reinvesting

e.a:

Invest \$1000, 1000/Share Price = # of Shares

of Shares + [# of Shares*DividendPayout]/NextSharePrice

Repeat til end of Periods, compute the realized returns

Monthly Payment Questions

Owed Amount = $c/r^*[1-1/(1+r)^T]$

Solve for C, Make sure T is in the right format (Monthly Payments, Yearly, Daily)

What is your return if term structure remains flat and you hold for X years?

TSR = Term Structure Rate

 $(1+r)^T = R/100$

R = $C^*(1+TSR)^{T-1} + C^*(1+TSR)^{T-2} + ... + C^*(1+TSR)^1 + (ParValue + C)$

Plug in R to first equation then solve for small r

Simple Trading Model

Note

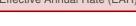
Note: Spot Rates = Flat Term Rate.

And Equal to YTM if the rates are flat.

If not, YTM is found using the formula to your left.

Present Value of Liabilities	Expected Value of Stock
Liabilities * 1/(1+r) ^T	E(V) = P[h]*V[h] + P[l]*V[l]
Compute Realized Returns	Ask price so Market Maker breaks even
(P[0] - P[-1])/ P[-1]	A =
Computing Expected Returns	$(P[u]^*P[l]^*V[l] + P[h]^*V[h]) / (P[u]^*P[l] + P[h]$
E(R) = (Probability * Return +))
Computing Standard Deviation	Bid price so Market Maker breaks even
Sd(R) = Sqrt(Probability*(Return - E(R) ² +)	B = (P[l]*V[l] + P[u]*P[h]*V[h]) / (P[l] + P[u]*P[h]
Effective Annual Rate (EAR)	Bid-Ask Spread
	•

s = A - B





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