

$$V_T(T) = S_T - F_\theta(T)$$

$$F_\theta(T) = S_0 (1 + r)^T$$

$$w_i^* = \frac{1}{N}$$

Fixed-Income Investments

Cheat Sheets

$$w_i^w = \frac{QP_i}{\sum_{i=1}^N QP_i}$$

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Fixed-Income Investments

FIXED-INCOME SECURITIES

Conversion ratio	Conversion ratio = $\frac{\text{Par value}}{\text{Conversion price}}$
Conversion value	Conversion value = Share price x Conversion ratio
Conversion premium/ discount	Conversion premium/ discount = Convertible bond price – Conversion value

INTRODUCTION TO FIXED-INCOME VALUATION

Fixed-rate bonds

$$PV = \frac{PMT}{(1+r)^1} + \frac{PMT}{(1+r)^2} + \dots + \frac{PMT + FV}{(1+r)^N}$$

PV = Present value (price)
PMT = Coupon payment amount per period
r = Discount rate
N = Number of periods to maturity
FV = Face value/par value/future value

$$PV = \frac{PMT}{(1+Z_1)^1} + \frac{PMT}{(1+Z_2)^2} + \dots + \frac{PMT + FV}{(1+Z_N)^N}$$

PV = Present value (price)
PMT = Coupon payment amount per period
Z_n = Spot rate per period
N = Number of periods to maturity
FV = Face value/par value/future value

$$PV_{\text{Flat}} = PV_{\text{Full}} - AI$$

$$PV_{\text{Full}} = \left[\frac{PMT}{(1+r)^{1-\frac{t}{T}}} + \frac{PMT}{(1+r)^{2-\frac{t}{T}}} + \dots + \frac{PMT + FV}{(1+r)^{N-\frac{t}{T}}} \right]$$

$$PV_{\text{Full}} = PV \times (1+r)^{\frac{t}{T}}$$

$$AI = \frac{t}{T} \times PMT$$

PV_{Full} = Full price of a bond
PV_{Flat} = Flat price of a bond
AI = Accrued interest
PMT = Coupon payment amount per period
N = Number of periods to maturity
T = Number of days within a coupon payment period
t = Number of days from the last coupon payment to the settlement date

Fixed-Income Investments

INTRODUCTION TO FIXED-INCOME VALUATION

Fixed-rate bonds

$$\left(1 + \frac{APR_m}{m}\right)^m = \left(1 + \frac{APR_n}{n}\right)^n$$

APR_m = Annual percentage rate for "m"

m = Periodicity that you are converting from

APR_n = Annual percentage rate for "n"

n = Periodicity that you are converting to

Current yield

$$\text{Current yield} = \frac{\text{Total PMT in a year}}{\text{Flat Price}}$$

Floating Rate Notes (FRNs)

$$PV = \frac{\frac{(\text{Index} + QM) \times FV}{m}}{\left(1 + \frac{\text{Index} + DM}{m}\right)^1} + \frac{\frac{(\text{Index} + QM) \times FV}{m}}{\left(1 + \frac{\text{Index} + DM}{m}\right)^2} + \dots + \frac{\frac{(\text{Index} + QM) \times FV}{m} + FV}{\left(1 + \frac{\text{Index} + DM}{m}\right)^N}$$

PV = Present value (price) of a floating-rate note

Index = Reference rate (stated as an annual percentage rate)

QM = Quoted margin (stated as an annual percentage rate)

FV = Future value paid at maturity (par value)

m = Periodicity of the floating-rate note, or the number of payment periods per year

DM = Discount/required margin (stated as an annual percentage rate)

N = Number of evenly spaced periods to maturity

Money market instruments

$$PV = FV \times \left(1 - \frac{\text{Days}}{\text{Year}} \times DR\right)$$

$$FV = PV + \left(PV \times \frac{180}{365} \times AOR\right)$$

PV = Present value (price) of the money market instrument

FV = Future value (face/par value) of the money market instrument

Days = Number of days between settlement and maturity

Year = Number of days in the year

DR = Discount rate (stated as an annual percentage rate)

AOR = Add-on rate (stated as an annual percentage rate)

Forward rates

$$(1 + Z_A)^A \times (1 + IFR_{A,B-A})^{B-A} = (1 + Z_B)^B$$

Z_n = Spot rate

IFR = Implied forward rate

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$$F_0(T) = S_0 (1 + r)^T$$

$$w_i^t = \frac{1}{N}$$

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$$w_i^w = \frac{Q_i P_i}{\sum_{i=1}^N Q_i P_i}$$

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