

Macaulay Duration - weighted avg. to receipt of bond's promised payments

Modified Duration

Effective Duration - sensitivity of bond's price to a change in benchmark yield curve

Key rate Duration - sensitivity of bond's price to a change in benchmark yield curve
→ essential for identifying

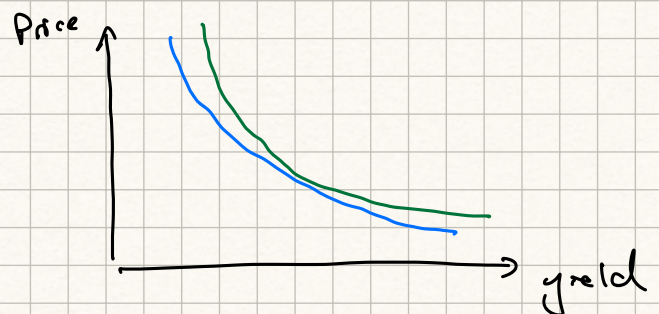
Empirical Duration - interest rate sensitivity determined from
(from regression of bond prices on benchmark int. rates)

Money Duration - bond price sensitivity measure expressed in currency units

PVBP - Price Value of a Basis Point - estimate of bond price change given a 1 bp change in YTM

a.k.a DVO1

Convexity - 2nd-order effect, relevant for describing bond's price behaviour for larger yield movements
→ captures extent to which price/yield relationship



Effective Convexity

IMPORTANT POINTS

- longer-maturity bonds have
- Convexity becomes more valuable in times of

↓
h-T bond prices

For a zero-coupon bond

- Mac Dur $\nearrow$ with maturity
- Convexity is approx. proportional to

For coupon-paying bonds

- have convexity than zero-coupon bonds
- convexity $\nearrow$ as bond's cash flows are

RISK MEASURES in a PORTFOLIO CONTEXT

Bond portfolio Duration

Modified Duration of portfolio

$\nwarrow$ = weighted avg. of individual bond Mod Dur in portfolio

Bond portfolio Convexity

$$\text{Avg. Convexity} = \sum_{j=1}^J \text{convexity} \left(\frac{MV_j}{MV} \right)$$

$\hookrightarrow$ some bonds add negative convexity:

Convexity becomes more valuable when

BTI $\nearrow$ convexity is

$\Rightarrow$ more convex portfolios exhibit

Effective Dur + Eff Conv $\Rightarrow$ used when future cash flows are

Spread Duration - portfolio sensitivity to changes in

= approx. % change in bond price for 1% change in credit spread.

Portfolio dispersion - variance of times to receipt of cash flows with respect to duration

MacDur = weighted avg. of times to receipt of cash flows

Dispersion = weighted variance

CORRELATIONS BETWEEN FIXED-INCOME SECTORS

In developed economies

IG securities (low prob. of default) $\xleftrightarrow[\text{correlated with}]{\text{highly}}$

HY securities $\xleftrightarrow[\text{more with}]{\text{correlated}}$

Correlations for global government bonds

$\xleftrightarrow[\text{driven by:}]{}$

How Portfolio measures are used by fund managers

Portfolio Duration in Total Return Mandates

TOP
 $\downarrow$
DOWN
+
 $\uparrow$
BOTTOM

Managing Credit Exposure using SPREAD DURATION

↳ used to estimate portfolio's sensitivity to changes in credit spreads

↳ if manager expects
CREDIT SPREADS to $\downarrow$ $\uparrow$

RELATIVE VALUE CONCEPT

= selecting the most attractive individual securities for a portfolio

using

based on factors like: valuation, issuer fundamentals etc.

⇓
OUTCOME: selection of bonds with most attractive
RISK/RETURN profiles