

factor out  $(1+i)^2$

$$= \frac{1}{(1+i)^2} \sum_{t=1}^n \left[ t^2 \cdot \frac{C_t}{(1+i)^t} + t \cdot \frac{C_t}{(1+i)^t} \right]$$

$$= \frac{1}{(1+i)^2} \sum_{t=1}^n \left[ \frac{C_t}{(1+i)^t} (t^2 + t) \right]$$

now divide  $\nearrow$  by Price of bond &  
we get convexity

$$C = \frac{1}{P} \left[ \frac{1}{(1+i)^2} \times \sum \frac{C_t}{(1+i)^t} \times (t^2 + t) \right]$$