Mathematical Tools For Assest Management
MTH6113

Week 1   Feedback

Spring Term 2024

1. Part h Practice Set 1 asks us to calculate the expected return and variance of a portfolio of 50% stock A and 50% stock B

   Expectation formula, you said we use $E[Rp] = \sum wi\, E[Ri]$. I understand this was derived from the 'Expectation of a discrete Random Variable' formula from the prev lecture.

   However what I don't understand is why you used the joint variance formula $Var(aX + bY) = a^2\, Var(X) + b^2\, Var(Y) + 2abCov(X,Y)$ to derive our formula.

1'. I was going through the worksheet solutions for week 1, and I was a little confused how we got the variance figures. get the expected return but not the var of portfolio

2. I am not sure why is the slope of the budget constraint -p2/p1 and not just positive p2/p1?

   ▶ Slope of a line$= \frac{\Delta y}{\Delta x}$. When x and y are negatively related when you increase x ($\Delta x > 0$) then you decrease y ($-\Delta y < 0$)

   ▶ The budget constrained is a negatively slopped line

      ▶ in order to increase consumption of x you need to decrease consumption of y using up all your income m (fixed)

3. Can you please go over again at the start of next lecture how we differentiate the Lagrangian for first order?

- ► Will do it