8. Based on current dividend yields and expected capital gains, the expected rates of return on portfolios A and B are 11% and 14%, respectively. The beta of A is 0.8 while that of B is 1.5. The T-bill rate is currently 6%, while the expected rate of return of the S&P 500 Index is 12%. The standard deviation of portfolio A is 10% annually, while that of B is 31%, and that of the index is 20%.

a. If you currently hold a market index portfolio, would you choose to add either of these portfolios to your holdings? Explain. <u>Well - diversified portfolio</u> ⇒ <u>Relevant risk measure</u> = β → CAPM → α

b. If instead you could invest <u>only</u> in bills and one of these portfolios, which would you choose?
⟶ Relevant risk measure = σ → RVR

a. CAPM: $E_A = r_f + \beta_A (E_m - r_f)$

$\qquad = 6 + .8 (12 - 6) = 10.8\%$

$E_B^{Reqd} = 6 + 1.5 (12 - 6) = 15\%$

$\alpha = E_{\text{Anticipated}} - E_{\text{Required}}$

∴ $\alpha_A = 11 - 10.8 = .2\%$ ✓

$\alpha_B = 14 - 15 = -1\%$

∴ Invest in A

<u>∴ Invest in A</u>

b. Reward - variability ratio = slope of CAL = $S_A = \dfrac{E_i - r_f}{\sigma_i}$

∴ $S_A = \dfrac{11 - 6}{10} = .5$ ✓

$S_B = \dfrac{14 - 6}{31} = .26$

$S_m = \dfrac{12 - 6}{20} = .5$

∴ Invest in A