

Quiz N°3
Finance I

Professor: Hugo Benedetti
Name:

1. If we remove the assumption of individuals being risk averse, how would the time value of money be impacted? (15 pts)

It wouldn't. Time value of money is independent of risk aversion. Time value of money depends on the risk free investment possibilities.

2. Please explain the meaning of the Sharpe ratio and how it's calculated(15 pts)

The Sharpe ratio indicates how much expected return an asset or portfolio delivers per each unit of risk. It's calculated by dividing the risk premium (risky return minus risk free return) by the standard deviation.

3. Why the risk of a portfolio can't be higher than the weighted average risk of its assets? (15 pts)

Because when the correlation coefficient is 1 (one), the risk of a portfolio is equal to the weighted average risk of its assets. Since the correlation coefficient can't have a value higher than 1 (one), then risk of a portfolio can't be higher than the weighted average risk of its assets.

4. How does the cost of opportunity of an asset change if the asset's variance increases? (15 pts)

It depends, since the risk of an asset depends both on the variance and the covariance. If the correlation coefficient is positive, then an increase in the variance will always result in an increase in the risk. If the correlation coefficient is negative, then the increase in the variance MIGHT decrease the risk, as the negative covariance could offset the increase in variance.

The following information applies to questions 5 - 7. Suppose the risk free rate is 5% and the market risk premium is 7.5%. The market portfolio has a standard deviation of 25%. Assets A and B have betas of 0.7 and 1.1 respectively

5.- What is the beta of the market portfolio? (10 pts)

The beta of the market portfolio ALWAYS is 1 (one)

6.- What is the appropriate cost of opportunity according to CAPM for assets A and B (15 pts)

Using the CAPM formula: $R_a = R_f + \beta_a * (R_m - R_f)$

$$R_a = 5\% + 0.7 * (7.5\%) = 10.25\%$$

Using the CAPM formula: $R_b = R_f + \beta_b * (R_m - R_f)$

$$R_b = 5\% + 1.1 * (7.5\%) = 13.25\%$$

7.- What is the appropriate cost of opportunity according to CAPM for a portfolio holding 10% of asset A and 90% of asset B (15 pts)

The beta of the portfolio is just the weighted average of its assets' betas

$$\text{Beta of portfolio} = 10\% * 0.7 + 90\% * 1.1 = 1.06$$

Using the CAPM formula: $R_p = R_f + \beta_p * (R_m - R_f)$

$$R_p = 5\% + 1.06 * (7.5\%) = 12.95\%$$