Investment Management

AZERBAIJAN STATE
UNIVERSITY OF ECONOMICS

Final exam questions 2

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The Risk-Return Trade off

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Questions:

1. The shares of Leaning Tower of Pita, a restaurant chain, are currently worth £80 and will generate the following payoffs to investors next year. You can assume each state is equally likely.

State of the Economy	Dividend	Share Price
Boom	£5.00	£195
Average	£2.00	£100
Recession	0	0

Calculate the expected return and standard deviation for a new shareholder

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Questions:

2. Consider the following two stocks

Summer Weather	Probability	Return on Stock A	Return on Stock B
Cool	¼	5%	15%
Average	2/3	20%	12%
Heat wave	1/12	50%	8%
Expected Return		18.75%	
Standard Deviation		11.39%	

What is the expected return and standard deviation of Stock B?

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Questions:

3. Ross PLC invests 60% of his funds in stock I and 40% of his funds in stock J. The standard deviation of returns on I is 10% and on J it is 20%. Calculate the variance of the portfolio returns, assuming that: The correlation between the returns is 1.0

4. You can form a portfolio of two assets, A and B, whose returns have the following characteristics:

Stock	Expected return	Standard Deviation	Correlation
A	10%	20%	0.5
B	15%	40%	

If you demand an Expected return on the portfolio of 12%, what are the portfolio weights? What is the portfolio standard deviation?

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Questions:

5. Share A has a beta of 0.4. What would be the beta of a portfolio which consisted of 80% of Share A and 20% of the market portfolio?

6. Suppose the returns on the US common stocks from 1926 to 1929 are 0.1370; 0.3580; 0.4514 and -0.0888.
   Calculate the arithmetic mean return over these four years.

7. How many variance terms and how many covariance terms do you need to calculate the risk of a 100-share portfolio?

8. Suppose that all stocks had a standard deviation of 30% and a correlation with each other of 0.4. What is the standard deviation of the returns on a portfolio that has equal holdings in 50 stocks?

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Questions:

9. **Assume that there is a portfolio with an E(r) =20% and σ = 30%. Also, the risk-free rate of return on T-Bills is 7%. If you are a risk-averse investor with degree of risk aversion A=4 would you invest in the risky portfolio or in the risk free asset? And what if your A=2?**

10. **Has the indifference curve of a more risk averse investor the same slope as that of a less-risk averse investor?**

11. **Given the optimal amount of wealth invested in the portfolio of risky stocks:**

$$y^* = \frac{E(r_p) - r_f}{A\sigma^2_p}$$

What do you think will happen to this Optimal amount (y*) if investors perceived higher volatility in the equity market?

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Questions:

12. Consider a portfolio with an E(r) =12% and σ = 18%. T-Bills offer a risk-free 7% rate of return. What is the maximum level of risk aversion for which the risky portfolio is still preferred to Bills?

13. By choosing several standard deviations, ranging from 0.05 to 0.25, calculate the expected rates of return: 0.05 for an investor with a risk aversion coefficient of 3.0.

14. By choosing several standard deviations, ranging from 0.05 to 0.25, calculate the expected rates of return: 0.05 for a risk-neutral investor.

15. You manage a risky portfolio with E(r) =18% and σ = 28%. The T-Bill rate is 8%. Your client chooses to invest 70% of a portfolio in your funds and 30% in T-Bill funds. Calculate the Expected return and standard deviation of your client's portfolio.

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Questions:

16. Calculate the standard deviation for Stock A

Stock A	
Prob.	Return
0.25	0%
0.5	40%
0.25	80%

expected return =40%

17. Suppose you invest 60% of your portfolio in Wal-Mart and 40% in IBM. The expected dollar return on your Wal-Mart stock is 10% and on IBM is 15%. The standard deviation of their annualized daily returns are 19.8% and 29.7%, respectively. Assume **a correlation coefficient** $\rho = 1.0$ and calculate the portfolio variance:

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Questions:

18. You have a portfolio of three shares; A, B and C. The total value of the portfolio is £500. Shares in A have a total value of £100 and have a beta (β_A) of 1.2. Shares in B have a value of £250 and have a beta (β_B) of 0.7, the beta of shares in C (β_C) is 0.9. What is the beta of the portfolio (β_p)?

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19. What is the difference between expected payoff and expected return? Provide an example.
20. What is the risk premium? Provide an example.
21. How diversification reduces the risk?
22. What is a beta? How to calculate beta of a portfolio?
23. What is an utility function? How to calculate it?
24. What do you understand by complete portfolio? How to calculate complete portfolios expected return and standard deviation?
25. Give definition and formula of the slope of Capital Allocation Line.