

Questions

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Q1) You are considering to build a portfolio contains 3 assets, using the following data answer all questions

Probability	Possible Rate of Return stock (A)	Possible Rate of Return (B)	Possible Rate of Return (C)
0.5	-10	12	14
0.2	8	10	7
0.3	14	8	-3

- 1- calculate the stocks rate of return?
- 2- calculate the standard deviation for each stock?
- 3- calculate the covariance coefficient between each pairs of stocks?
- 4- calculate the correlation coefficient between each pairs of stocks?
- 5- calculate the portfolio rate of return and the portfolio risk if you know that $W_1 = 0.3$ $W_2 = 0.45$ and $W_3 = 0.25$?

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Q2) Assume that the investor give an ordered to his broker to buy on margin 200 shares from stock (A) which has a price 100 QR per share and another order to buy on margin 200 shares from stock (B) with the market price 60 QR.

1) Prepare a balance sheet for this investor if the initial margin is 60%.

2) Assume that the price of stock (A) goes up to be 110 QR, and the price of the stock (B) decline to be 25 QR, do you think that the investor will receive a margin call if the maintenance margin is 30%?

3) Using the information given in number 2 calculate the rate of return for this investor if you know that he received 5 QR as a Dividend for the stock A and 3QR for the stock B at the sam time the interest rate for the loan is 8% for the period?

Page ①

Assume that another investor asked his broker to sell (short sale) 200 shares from stock (A) that has a price 200 QR per share and another order to buy on margin 300 shares from stock (B) with the market price 150 QR.

- 1) Prepare a balance sheet for this investor if the initial margin is 60%.
- 2) Assume that the price of stock (A) goes up to be 240 QR, and the price of the stock (B) increase also to be 160 QR, do you think that the investor will receive a margin call if the maintenance margin is 30%?

3) Q3)

Table 4.9 Percentage of the Risk on an Individual Security that Can Be Eliminated by Holding a Random Portfolio of Stocks within Selected National Markets and among National Markets [13]

United States	73
U.K.	65.5
France	67.3
Germany	56.2
Italy	60.0
Belgium	80.0
Switzerland	56.0
Netherlands	76.1
International stocks	89.3

For the United States data and Switzerland data of above table what is the ratio of the difference between the average variance minus average covariance and the average covariance? If the average variance of a single security is 40, what is the expected variance of a portfolio of 10, 30 and 80 securities?

4 Q4) For the data in table below, suppose an investor desires an expected variance less than 7.400 what is the minimum number of securities for such a portfolio?

Number of Securities	Expected Portfolio Variance
1	46.619
2	26.839
4	16.948
6	13.651
8	12.003
10	11.014
12	10.354
14	9.883
16	9.530
18	9.256
20	9.036
25	8.640
30	8.376
35	8.188
40	8.047
45	7.937
50	7.849
75	7.585
100	7.453
125	7.374
150	7.321
175	7.284
200	7.255
250	7.216
300	7.190
350	7.171
400	7.157
450	7.146
500	7.137
600	7.124
700	7.114
800	7.107
900	7.102
1000	7.097
Infinity	7.058