PORTFOLIO MANAGEMENT CLASS 6

CLASS WORK COVERAGE

To streamline our learning process, I've categorized the questions we'll tackle in class into four distinct groups:

1. ***Classic:*** *These questions are exactly as presented in your book, providing a familiar foundation.*
2. ***Transformed:*** *Here, we've converted book questions into multiple-choice format to enhance your analytical skills.*
3. ***Adapted:*** *These are similar to book questions but with altered numbers or names, presented as multiple-choice questions for varied practice.*
4. ***Original:*** *These are entirely new questions not found in your book, designed to challenge and expand your understanding.*

This structure will help us navigate through a range of problems, ensuring a comprehensive grasp of the material. Looking forward to our next session!

Q. No.	Type	Book	Page No.	Q No.
Case Study 1	***Transformed***	CW Q BOOK	52	21
Case Study 2	***Transformed***	CW Q BOOK	52	22
Case Study 3	***Transformed***	CW Q BOOK	53	25
Case Study 4	***Transformed***	CW Q BOOK	53	26
Question	***Classic***	HW Q BOOK	33	9
Extra Question				
Case study	***Original***	-	-	-
Question	***Original***	-	-	-

CASE STUDY 1

The following information is available in respect of Security A:

Equilibrium Return	12%
Market Return	12%
6% Treasury Bond trading at	₹ 120
Co-variance of Market Return and Security Return	196%
Coefficient of Correlation	0.80

Question 1:

What is the Standard Deviation of Market Return?

A. 12%

B. 10%

C. 14%

D. 8%

Question 2:

What is the Standard Deviation of Security Return?

A. 17%

B. 18%

C. 15%

D. 17.50%

Answer:

Question 1:

C is correct.

Question 2:

D is correct.

Explanation:

i. $R_f = \frac{6}{120} \times 100 = 5\%$

Applying CAPM

$12\% = 5\% + \beta(12\% - 5\%)$

$7\% = \beta(7\%)$

$\beta = 1$

$$\beta = \frac{Cov(r,m)}{\sigma_m^2}$$

$2^{\sigma}{}_{m} = 196$

$\sigma_m = \sqrt{196} = 14$

Standard Deviation of Market Return = 14

Note: since equilibrium return and market return are same it means beta will definitely be 1, no need of any calculation. But follow ICAI method only

ii. $Cor. = \frac{Cov(r,m)}{\sigma_m \sigma_r}$

$0.80 = 196/14\sigma_r$

$\sigma_r = 17.50\%$

Standard Deviation of Security Return = 17.50%

CASE STUDY 2

A company's beta is 1.40. The market return is 14% and the risk free rate is 10%.

Question 1:

What is the expected return of the company's stock based on CAPM?

A. 12.5%

B. 14.5%

C. 15.6%

D. 16.0%

Question 2:

If the risk premium on the market goes up by 2.50%, what would be the revised expected return on this stock?

A. 18.5%

B. 19.1%

C. 17.5%

D. 16.5%

Answer:

Question 1:

C is correct.

Question 2:

B is correct.

Explanation:

i. Computation of expected return based on CAPM

   $R_j = Rf + \beta\,(R_m - R_f) = 10\% + 1.40\,(14\% - 10\%) = 10\% + 5.6\% = 15.6\%$

ii. Computation of expected return if the market risk premium goes up by 2.50% points

   The return from the market goes up by 2.50% i.e. 14% + 2.50% = 16.50%

   Expected Return based on CAPM is given by

   $R_j = 10\% + 1.40\,(16.5\% - 10\%) = 10\% + 1.40 \times 6.5\% = 10\% + 9.10\% = 19.10\%$

Note:
ICAI has wrongly interpreted increase in market risk premium as increase in market return
The correct solution will be
New market risk premium = 4+2.5 = 6.5%
So required return = 10 + 1.4×6.5 = 19.1%

CASE STUDY 3

The expected returns and Beta of three stocks are given below:

Stock	A	B	C
Expected Return (%)	18	11	15
Beta Factor	1.7	0.6	1.2

The risk free rate is 9% and the expected rate of return on the market portfolio is 14%

Question 1:

What is the required return for Stock A based on CAPM?

A. 17.50%

B. 18.00%

C. 16.50%

D. 15.00%

Question 2:

What is the required return for Stock B based on CAPM?

A. 10.50%

B. 12.00%

C. 13.00%

D. 15.50%

Question 3:

What is the required return for Stock C based on CAPM?

A. 14.00%

B. 15.00%

C. 16.00%

D. 13.50%

Question 4:

Which stock is undervalued, overvalued, or correctly valued?

A. Stock A is correctly valued, Stock B is under valued, Stock C is over valued

B. Stock A is over valued, Stock B is correctly valued, Stock C is under valued

C. Stock A is under valued, Stock B is correctly valued, Stock C is over valued

D. Stock A is under valued, Stock B is over valued, Stock C is correctly valued

Answer:

Question 1:

A is correct.

Question 2:

B is correct.

Question 3:

B is correct.

Question 4:

D is correct.

Explanation:

Required Rate of Return is given by

$R_j = R_f + \beta (R_m - R_f)$

For Stock A, $R_j = 9 + 1.7 (14 - 9) = 17.50\%$

Stock B, $R_j = 9 + 0.6 (14-9) = 12.00\%$

Stock C, $R_j = 9 + 1.2 (14-9) = 15.00\%$

Required Return %	Expected Return %	Valuation	Decision
17.50%	18.00%	Under Valued	Buy
12.00%	11.00%	Over Valued	Sell
15.00%	15.00%	Correctly Valued	Hold

CASE STUDY 4

Assuming that shares of ABC Ltd. and XYZ Ltd. are correctly priced according to Capital Asset Pricing Model. The expected return from and Beta of these shares are as follows:

Share	Beta	Expected return
ABC	1.2	19.8%
XYZ	0.9	17.1%

Question 1:

What is the risk-free rate (R_f) and the expected market return (R_m)?

A. R_f = 9%, R_m = 18%

B. R_f = 9%, R_m = 19%

C. R_f = 8%, R_m = 17%

D. R_f = 10%, R_m = 18%

Question 2:

What is the equation of the Security Market Line (SML)?

A. E(R) = 9% + 9% × ß

B. E(R) = 9% + 18% × ß

C. E(R) = 6% + 3% × ß

D. E(R) = 6% + 9% × ß

Answer:

Question 1:

A is correct.

Question 2:

A is correct.

Explanation:

CAPM = $R_f + \beta (R_m – R_f)$

Accordingly

$R_{ABC} = R_f + 1.2 (R_m – R_f) = 19.8$
$R_{XYZ} = R_f + 0.9 (R_m – R_f) = 17.1$
$19.8 = R_f + 1.2 (R_m – R_f)$ .... (1)

$17.1 = R_f + 0.9 (R_m – R_f)$ ....(2)

Deduct (2) from (1)

$2.7 = 0.3 (R_m – R_f)$
$R_m – R_f = 9$
$R_f = R_m – 9$

Substituting in equation (1)

$19.8 = (R_m – 9) + 1.2 (R_m – R_m + 9)$
$19.8 = R_m - 9 + 10.8$
$19.8 = R_m + 1.8$
Then $R_m = 18\%$ and $R_f = 9\%$

Security Market Line = $R_f + \beta$ (Market Risk Premium) = $9\% + \beta \times 9\%$

PRACTICE QUESTION

Pearl Ltd. expects that considering the current market prices, the equity shareholders as per Moderate Approach, should get a return of at least 15.50% while the current return on the market is 12%. RBI has closed the latest auction for ₹ 2500 crores of 182 day bills for the lowest bid of 4.3% although there were bidders at a higher rate of 4.6% also for lots of less than ₹ 10 crores. What is Pearl Ltd's Beta?

Answer:

Determining Risk free rate: Two risk free rates are given. The aggressive approach would be to consider 4.6% while the conservative approach would be to take 4.3%. If we take the moderate value then the simple average of the two i.e. 4.45% would be considered

Application of CAPM

$R_j = R_f + \beta (R_m - R_f)$

$15.50\% = 4.45\% + \beta (12\% - 4.45\%)$

$$\beta = \frac{15.50\% - 4.45\%}{12\% - 4.45\%} = \frac{11.05}{7.55} = 1.464$$

EXTRA QUESTIONS

CASE STUDY

Two friend Mr. A and Mr. N were discussing about the risks of market. While Mr. A is sort of risk averse, Mr. N is an aggressive investor and believes in taking risk.

Mr. N said we cannot diversify the market risk at all, and he quoted the Modern Portfolio Approach. Both friends analyze the market data for the few months and came out with expected returns on two stocks for a particular market.

Market Return	Aggressive	Defensive
7%	4%	9%
25%	40%	18%

Based on above scenario, answer the following questions:

Question 1:

The Beta of Defensive stock is…………

A. 2
B. 0.5
C. 4
D. 1

Question 2:

If the market return is equally likely to be 7% or 25% then expected return of Aggressive stock shall be……..

A. 18%
B. 13.50%
C. 22%
D. 11%

Question 3:

The Alpha of the Defensive stocks is………………

A. -10%
B. 22%
C. 5.50%
D. 12%

Question 4:

The Modern Portfolio Theory was propounded by …………………

A. William Sharpe
B. Black Scholes
C. Stephen Ross
D. Harry Markowitz

Question 5:

As per Capital Market Line (CML) Theory the Portfolios lying on the CML over the market portfolio are called ………………

A. Lending Portfolios
B. Borrowing Portfolios
C. Diversified Portfolios
D. Risk- Free Portfolios

Answer:

Question 1:

B is correct.

Question 2:

C is correct.

Question 3:

C is correct.

Question 4:

D is correct.

Question 5:

C is correct.

PRACTICE QUESTION

The expected returns and Beta of three stocks are given below:

Stock	A	B	C
Expected Return (%)	20	13	17
Beta Factor	1.9	0.8	1.4

If the risk-free rate is 9% and the expected rate of return on the market portfolio is 14% , examine which of the above stocks are over, under or correctly valued in the market? What shall be the strategy?

Answer:

Required Rate of Return is given by

$R_j = R_f + \beta\,(R_m - R_f)$ For Stock A,

$R_j = 9\% + 1.9\,(14\% - 9\%) = 18.50\%$

Stock B, $R_j = 9\% + 0.8\,(14\% - 9\%) = 13.00\%$

Stock C, $R_j = 9\% + 1.4\,(14\% - 9\%) = 16.00\%$

Required Return %	**Expected Return %**	**Valuation**	**Decision**
18.50%	20.00%	Under Valued	Buy
13.00%	13.00%	Correctly Valued	Hold
16.00%	17.00%	Under Valued	Buy