

PORTFOLIO MANAGEMENT

CLASS 11

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.
61	Classic	HW Q BOOK	69
67	Classic	HW Q BOOK	71

PART VII: AMBIGUOUS**Question 61: SSEI HW Book Page No. 69**

Details of portfolio held by your client which yields average return of 14% are given below

Shares	Cost (Rs)	Dividend/ Interest	Market Price	Beta
A	30,000	5000	33000	0.7
B	40,000	4000	42000	0.9
C	20,000	2000	23000	0.8
D	15,000	2250	14000	1.1
Govt. Bond	50,000	5000	52000	1

Find out expected return of each investment using CAPM and average return of the portfolio.

(Source: ICAI)

ANSWER:

Shares	Cost (Rs)	Dividend (Rs)	Market Value (Rs)	Capital Gain (Rs.)	
A	30,000	5000	33,000	3,000	0.7
B	40,000	4000	42,000	2,000	0.8
C	20,000	2000	23,000	3,000	0.9
D	15,000	2250	14,000	-1,000	1.1
Govt. bond	50,000	5000	52,000	2,000	1.0
Total	165,000	18250	1,74,000	9,000	4.5

$$\text{Expected Return} = \frac{\text{Dividend} + \text{Capital Appreciation}}{\text{Investment}}$$

$$= \frac{(18250 + 9,000)}{165000} = 16.52 \%$$

Average beta = 0.90

Avg. Return = Risk free return + Avg. Beta (Expected Return – Risk free Return)

$$\text{Or } 0.14 = R_f + 0.90 (0.1652 - R_f)$$

$$\text{Or } 0.10 R_f = 0.1486 - 0.14$$

$$\text{Or } R_f = 8.6 \%$$

Expected Rate of Return of Individual security = $K_e = R_f + \beta (K_m - R_f)$

A	$8.6 + 0.7 (16.52 - 8.6)$	= 14.45
B	$8.6 + 0.8 (16.52 - 8.6)$	= 14.94
C	$8.6 + 0.9 (16.52 - 8.6)$	= 15.73
D	$8.6 + 1.1 (16.52 - 8.6)$	= 17.71
Govt. bond	$8.6 + 1.0 (16.52 - 8.6)$	= 16.52

Expected return of the Portfolio = 15.81 %

Question 67: SSEI HW Book Page No. 71

Following data is related to Company X, Market Index and Treasury Bonds for the current year and last 4 years:

Year	Company X		Market Index		Return on Treasury Bonds
	Average Share Price(P)	Dividend Per Share (D)	Average Market Index	Market Dividend Yield	
2010	₹ 139	₹ 7.00	1300	3%	7%
2011	₹ 147	₹ 8.50	1495	5%	9%
2012	₹ 163	₹ 9.00	1520	5.5%	8%
2013	₹ 179	₹ 9.50	1640	4.75%	8%
2014 (Current Year)	₹ 203.51	₹ 10.00	1768	5.5%	8%

With the above data estimate the beta of Company X's share.

(Source: ICAI)

ANSWER:

First of we shall calculate expected return from share of Company X

i. Average annual capital gain (%)

Let g = average annual capital gain, then:

$$₹ 203.51(1+g)^4 = ₹139$$

$$\text{Then } g = (203.51/139)^{1/4} - 1 = 0.10 \text{ i.e. } 10\%$$

ii. Average annual dividend yield (%)

Year	Dividend/Share Price	Dividend Yield
2010	₹7.00/₹139	0.050
2011	₹8.50/ ₹147	0.058
2012	₹9.00/ ₹163	0.055
2013	₹9.50/ ₹179	0.053
2014 (Current Year)	₹10.00/ ₹203.51	0.049
		0.265

$$\text{Average Yield} = 0.265/5 = 0.053 \text{ i.e. } 5.3\%$$

Thus with this data expected return of share of Company X can be given as follows:

$$\begin{aligned} E(r_X) &= \text{Average Annual Capital Gain} + \text{Average Annual Dividend} \\ &= 10\% + 5.3\% = 15.3\% \end{aligned}$$

Then we shall calculate expected return from market index as follows:

i. Average annual capital gain (%)

$$1300(1+g)^4 = 1768$$

$$\text{Then } g = (1768/1300)^{1/4} - 1 = 0.08 \text{ i.e. } 8\%$$

ii. Average annual dividend yield (%)

$$3\% + 5\% + 5.5\% + 4.75\% + 5.5\% = 23.75\%/5 = 4.75\%$$

$$\text{Thus expected return on Market Index } E(r_M) = 8\% + 4.75\% = 12.75\%$$

Average annual risk-free rate of return (Treasury Bond Return)

$$7\% + 9\% + 8\% + 8\% + 8\% = 40\%/5 = 8\%$$

Now with the above information we compute Beta (β) of share company X using CAPM as follows:

$$E(r_X) = r_f + \beta[E(r_M) - r_f]$$

$$15.3\% = 8\% + \beta[12.75\% - 8\%]$$

$$\beta = 1.54$$