



b) Assuming Expected Return also includes dividend yield

	$E(R)$	CAPM Return		Comments
T	21	$6\% + 1.55(10\%) =$	21.50%	overvalued
U	12.5	$6\% + 0.65(10\%) =$	12.50%	rightly valued
V	18	$6\% + 1.26(10\%) =$	18.60%	overvalued
W	18.5	$6\% + 1.14(10\%) =$	17.40%	undervalued

Mr. A should sell overvalued stocks of T and V, should hold rightly valued stock of U and buy undervalued stock of W.

45. Illustration

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	
2009	₹ 139	₹ 7.00	1300	3%	7%
2010	₹ 147	₹ 8.50	1495	5%	9%
2011	₹ 163	₹ 9.00	1520	5.5%	8%
2012	₹ 179	₹ 9.50	1640	4.75%	8%
2013	₹ 203.51	₹ 10.00	1768	5.5%	8%

With the above data estimate the beta of Company X's share. (Similar May'22 QP)

Solution:

$$E(R) \text{ of stock} = \frac{\text{dividend}}{\text{opening value}} + \frac{\text{capital gain}}{\text{opening value}}$$

	Op Stk Price	Closing Stk Price	Increase	Stk Return = (CI - OP) / OP	Dividend	Div / OP	Total Return (Stk + Div Yld)
2009-10	139	147	8	5.76%	8.50	6.12%	11.87%
2010-11	147	163	16	10.88%	9.00	6.12%	17.01%
2011-12	163	179	16	9.82%	9.50	5.83%	15.64%
2012-13	179	203.5	24.5	13.69%	10.00	5.59%	19.27%

	Opening Index Value	Closing Index Value	Increase	Index Return = (CI - OP) / OP	Div Yield	Total Return Index + Div
2009-10	1300	1495	195	15.00%	5.00%	20.00%
2010-11	1495	1520	25	1.67%	5.50%	7.17%
2011-12	1520	1640	120	7.89%	4.75%	12.64%
2012-13	1640	1768	128	7.80%	5.50%	13.30%

$$\text{Average Return on Treasury Bond, } R_f = \frac{7\% + 9\% + 8\% + 8\% + 8\%}{5}$$

$$R_f = 8\%$$

	X - Stock Return	Y - Market Return	XY	y ²
2009-10	11.87	20.00	237.41	400.00
2010-11	17.01	7.17	121.98	51.41
2011-12	15.64	12.64	197.82	159.77
2012-13	19.27	13.30	256.42	176.89
Total	63.80	53.12	813.53	788.07

