Semester "Spring 2010"

Financial Management (MGT201)

Solution of Assignment # 02 — *Marks: 30*

Question # 01 — (10 marks)

Given the following information for the stock of Foster Company, calculate its beta.

Current price per share of common	Rs.80.00
Expected dividend per share next year	Rs.5.00
Constant annual dividend growth rate	7%
Risk free rate of return	6%
Return on market portfolio	10%

Solution

(CE stands for Common Equity)

$\mathbf{P = DIV_1 / (r_{CE} - g)}$

$80 = 5 / (r_{CE} - 0.07)$

$(r_{CE} - 0.07) = 5/80$

$(r_{CE} - 0.07) = 0.0625$

$r_{CE} = 0.0625 + 0.07$

$r_{CE} = 0.1325$

$\mathbf{r_{CE} = 13.25\%}$

$\mathbf{r_{CE} = r_{RF} + (r_M - r_{RF})\,\beta_{CE}}$

$13.25\% = 6\% + (10\% - 6\%)\,\beta_{CE}$

$13.25\% = 6\% + (4\%)\,\beta_{CE}$

$13.25\% - 6\% = (4\%)\,\beta_{CE}$

$7.25\% = (4\%)\,\beta_{CE}$

$7.25\% / 4\% = \beta_{CE}$

$\mathbf{\beta_{CE} = 1.8125}$

Question # 02 — (20 marks)

ABC Company is considering investing in either of the two outstanding bonds. Both the bonds have Rs.2,000 par values and 10% coupon interest rates and pay annual interests. Bond A has exactly 3 years to maturity, and bond B has 5 years to maturity.

a) Calculate the value of bond A if the required rate of return is 14%.
b) Calculate the value of bond B if the required rate of return is 14%.

c) If ABC wants to minimize the *interest rate risk,* which bond should be purchased? Why.

Solution

Coupon payment= Rs.2,000 * 10%
Coupon payment= Rs.200

a) Value of bond A:

$PV= CF_1/ (1+r_D) +CF_2/ (1+r_D)^2 + CF_3/ (1+r_D)^3 +PAR/ (1+r_D)^n$

$PV= 200/ (1+0.14) +200/ (1+0.14)^2 + 200/ (1+0.14)^3 +2,000/ (1+0.14)^3$

$PV= 200/ (1.14) +200/ (1.14)^2 + 200/ (1.14)^3 +2,000/ (1.14)^3$

PV= 175.44 + 153.89 + 134.99 + 1349.94

PV = Rs.1,814.26

b) Value of bond B:

$PV= CF_1/ (1+r_D) +CF_2/ (1+r_D)^2 + CF_3/ (1+r_D)^3 +CF_4/ (1+r_D)^4 + CF_5/ (1+r_D)^5+PAR/ (1+r_D)^5$

$PV= 200/ (1+0.14) +200/ (1+0.14)^2 + 200/ (1+0.14)^3 +200/ (1+0.14)^4 + 200/ (1+0.14)^5 +2,000/ (1+0.14)^5$

$PV= 200/ (1.14) +200/ (1.14)^2 + 200/ (1.14)^3 + 200/ (1.14)^4 + 200/ (1.14)^5+2,000/ (1.14)^5$

PV= 175.44 + 153.89 + 134.99 + 118.41 + 103.87 + 1038.73

PV = Rs.1,725.33

c)

Interest Rate Risk for Long Term Bonds is more than the Interest Rate Risk for Short Term Bonds provided the coupon rate for the bonds is similar. When investor buy a long term bond, he is locked in investment for long term period and there are more chances of fluctuation in interest rate and the inflation rate.

So, **Bond A** should be purchased by the ABC Company to minimize the interest rate risk.