

- 18) You are given the following information about the return of a security, using a two-factor model.

Factors	Beta	Expected Return
T	0.10	25%
U	0.15	20%

The annual effective risk-free rate of return is 5%.

Calculate the expected return of this security using the given two-factor model.

- (A) 6.52%
- (B) 8.33%
- (C) 9.25%
- (D) 11.33%
- (E) 13.32%

$$\rightarrow : E[R_s] = r_f + \beta_s^T (E[R_T] - r_f) + \beta_s^U (E[R_U] - r_f)$$

$$E[R_s] = 0.05 + 0.10 (0.25 - 0.05) + 0.15 (0.20 - 0.05)$$

$$\begin{aligned} E[R_s] &= 0.05 + 0.10(0.2) + 0.15(0.15) \\ &= 0.05 + 0.02 + 0.0225 \\ &= 0.0925 \end{aligned}$$



Equity vs. Debt Financing.

Capital Structure: Relative proportions of debt, equity, and other securities that a company has outstanding.

Financing a Firm w/ Equity:

Equity in a firm w/ no debt is called unlevered equity.

Financing a Firm w/ Debt and Equity:

Equity in a firm which also has debt outstanding is called levered equity.

Promised payments to debt holders are to be made before promised payments to equity holders.

Perfect Capital Markets (PCM).

1. There are no taxes, no transaction costs, or no issuance costs associated w/ security trading.

↑
When a firm issues securities to raise capital or takes a loan, the bank which lends the money or the underwrites will charge fees.

2. Investors trade in the same set of securities @ competitive prices equal to the present value of the future cashflows.
3. A firm's financing decisions do not change the cashflows generated by its investments; they also do not reveal any information about the future cashflows.

Miller-Modigliani I.

In a perfect capital market, the total value of the firm's securities is equal to the market value of the total cashflows generated by its assets, and it is not affected by capital structure.

7. A firm has the following capital structure:

	Market Value
Debt	5,000
Equity	10,000 ✓
Total	15,000

Current Share Price: 50 ✓

Expected Earnings Per Share (EPS): 6

Cost of New Debt: 5%

The firm would like to issue new debt and use the proceeds to repurchase equity.

Using the assumptions in Modigliani and Miller's Proposition I, determine the amount of new debt the firm must issue to achieve an expected ROE of 15%.

$D = ?$

↑
return on equity

(A) 2000

(B) 3000

(C) 4000

(D) 5000

(E) 6000

→ : It is required that the new ROE be 15%.

$$0.15 = \text{new ROE} = \frac{\text{"net money in"}}{\text{"MV of equity after new debt"}}$$

$$= \frac{\text{expected earnings} - \text{interest on debt}}{\text{old MV of equity} - \text{new debt}}$$

Let D denote the amount of new debt.

$$0.15 = \text{new ROE} = \frac{1200 - 0.05 \cdot D}{10000 - D}$$

↑
from table
in problem

Ⓐ

$$\text{expected earnings} = \text{EPS} \times (\# \text{ of shares})$$

$$= \text{EPS} \times \frac{\text{MV of Equity}}{\text{price per share}} = 6 \times \frac{10,000}{50} = 1200$$

⊛

$$\Downarrow 0.15(10000 - D) = 1200 - 0.05D$$

$$0.10D = 300$$

$$D = 3000$$

