

Chapter 17 : Does Debt Policy Matter?

* Capital structure : Firm's mix of debt and equity financing

Modigliani & Miller (MM)

1. Payout policy does not matter in perfect capital markets.

2. Financing decisions don't matter in perfect markets.



Firm can't change the total value of its securities just by splitting cash flows into different streams.

→ What matters then? → INVESTMENT Decision

PROPOSITION : Value of the firm does not depend on the capital structure.

D = Debt

E = Equity

No. of shares = 1000

P = ₹ 50

$$\text{So, } E = 50 \times 1000 = 50,000$$

Also, D = 25,000

$$\begin{aligned} V = D + E &= 50,000 \\ &+ 25,000 \\ &\underline{\underline{75,000}} \end{aligned}$$

Now; Suppose; New Debt = 10,000
(Company borrows to pay Dividend of ₹ 10 per share)

$$\left. \begin{array}{l} \text{OLD DEBT} = 25,000 \\ \text{NEW DEBT} = 10,000 \end{array} \right\} D = 35,000$$

$$E = ?$$

$$V = ?$$

Case 1 : If $V = 75,000$

$$\Downarrow \\ E = V - D$$

$$= 75,000 - 35,000$$

Case 2 : If $V = 80,000$

$$\Downarrow \\ E = V - D$$

$$= 80,000 - 35,000$$

$$= \underline{45,000}$$

\uparrow or \downarrow in $V \Rightarrow$ accrues to firm stockholders

Proposition

The market value of any firm is independent of its capital structure

Firm U = Unlevered

$$\Rightarrow V_U = E_U$$

Firm L = levered

$$V_L = E_L + D_L$$

Case 1: You invest in unlevered firm.

⇓

1% of Firm U's shares

⇒ You are entitled to 1% of gross profits

Rupee Investment	Rupee Return
$0.01 V_U$	$0.01 \times \text{Profits}$

Case 2 Invest in firm L

	Investment	Rupee Return
D	$0.01 D_L$	0.01 (Interest)
E	$0.01 E_L$	0.01 (Profits - interest)
Total	$0.01 (D_L + E_L)$	$0.01 \times \text{Profits}$
	$0.01 V_L$	

both strategies \Rightarrow same payoff

must have same price [law of one price]

$$\Rightarrow 0.01 V_u = 0.01 V_L$$

$$V_u = V_L$$

	<u>Investment</u>	<u>Profit</u>
#	$0.01 E_L$	$0.01 (P - I)$
	$\Rightarrow 0.01 (V_L - D_L)$	

Borrow $0.01 D_L$ + Purchase 1% of stock of levered firm.

		<u>Return</u>
Borrowing	$-0.01 D_L$	$-0.01 (\text{Interest})$
Equity	$0.01 V_U$	$0.01 (\text{Profits})$
Total	$0.01 (V_U - D_L)$	$0.01 (\text{Profits} - \text{Interest})$

\Rightarrow Since Payoff is same

$$\Rightarrow 0.01 (V_L - D_L) = 0.01 (V_U - D_L)$$

$$\Rightarrow \underline{V_L = V_U} \quad \checkmark$$