

FINANCING
and
RISK
MANAGEMENT



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money for capital expenditures comes from. Managers could assume all-equity financing, for example, to simplify matters. If proposition I holds, that is exactly the right approach.

We believe that in practice capital structure *does* matter, but we nevertheless devote all of this chapter to MM's argument. If you don't fully understand the conditions under which MM's theory holds, you won't fully understand why one capital structure is better than another. The financial manager needs to know what kinds of market imperfection to look for.

In Chapter 6 we will undertake a detailed analysis of the imperfections that are most likely to make a difference, including taxes, the costs of bankruptcy, and the costs of writing and enforcing complicated debt contracts. We will also argue that it is naive to suppose that investment and financing decisions can be completely separated.

But in this chapter we isolate the decision about capital structure by holding the decision about investment fixed. We also assume that dividend policy is irrelevant.

THE EFFECT OF LEVERAGE IN A COMPETITIVE TAX-FREE ECONOMY

We have referred to the firm's choice of capital structure as a *marketing problem*. The financial manager's problem is to find the combination of securities that has the greatest overall appeal to investors—the combination that maximizes the market value of the firm. Before tackling this problem, we ought to make sure that a policy which maximizes firm value also maximizes the wealth of the shareholders.

Let D and E denote the market values of the outstanding debt and equity of the Wapshot Mining Company. Wapshot's 1,000 shares sell for \$50 apiece. Thus

$$E = 1,000 \times 50 = \$50,000$$

Wapshot has also borrowed \$25,000, and so V , the aggregate market value of all Wapshot's outstanding securities, is

$$V = D + E = \$75,000$$

Wapshot's stock is known as *levered equity*. Its stockholders face the benefits and costs of **financial leverage**, or *gearing*. Suppose that Wapshot "levers up" still further by borrowing an additional \$10,000 and paying the proceeds out to shareholders as a special dividend of \$10 per share. This substitutes debt for equity capital with no impact on Wapshot's assets.

What will Wapshot's equity be worth after the special dividend is paid? We have two unknowns, E and V :

Old debt	\$25,000	}	\$35,000 = D
New debt	\$10,000		
Equity			? = E
Firm value			? = V

If V is \$75,000 and the firm has offered a capital structure of \$80,000 as a result, it is \$5,000 ahead. In terms of the firm's stock price, this is also best for the firm.

This conclusion is consistent with the Modigliani-Miller policy and, secondly, with the theory of capital structure.

Dividend policy is also irrelevant. Chapter 7. We now turn to the question of dividend policy, which is considered in a separate chapter.

Our second conclusion is that the value of the firm could be wrong. The value of old bonds can be higher than the value of their interest payments to the holders of old bonds.

But this anti-modigliani conclusion is not a problem for the theory of debt has a long history.

Enter Modigliani

Let us accept the theory that the firm maximizes the value of the firm by stopping worrying about the value of the firm is unaffected by the choice of capital structure.

You can see that the value of the firm and differ only in the amount of debt. If E_U is the same as the value of the firm's stock is, there is no difference.

Now think of the firm as a risk. You can buy the firm's shares, your investment is the same as the value of the firm's stock.

Now compare the value of the debt and the value of the firm's stock.

²See E. F. Fama, "The Market for Corporate Control: The Case of the Firm," *Journal of Financial Economics*, 272-284, for a rigorous analysis of the theory of the firm.