The Modigliani and Miller hypothesis

In the first of two articles, Doctor Humphrey Shaw of the University of North London explains the building blocks of modern financial theory.

During the past 50 years, the composition of a company's capital structure has been the subject of a great deal of academic debate. At the centre of the controversy is whether a company's total value is affected by its choice of capital structure.

In 1958, Modigliani and Miller, two US academics, wrote an article challenging the conventional wisdom, the thinking now generally referred to as the traditional theory of finance. The traditional theory holds that it is possible for a company to have an optimum capital structure comprising a mix of debt and equity finance. The company gains from having this mix of capital because it is able to minimise its weighted average cost of capital, thereby maximising its market value.

This optimum level of gearing will apply for any company and so one which currently has no debt capital should be able to increase its market value by introducing some (debt capital) into its structure. This is only possible because debt is a cheaper form of long-term finance than share capital. The problem for management is what constitutes an optimum level of debt; for, should the company exceed this, the savings from using debt capital would be more than offset by the increase in the required rate of return on its equity capital. If this situation arose, the firm's weighted average cost of capital would rise, leading to a reduction in its market value.

The Modigliani and Miller hypothesis was based on the assumption that a company's shares trade in a perfect market. In such a market, managers cannot alter the firm's value by changing a company's level of gearing. In a perfect capital market, a company's capital structure has no bearing on its value because the share price is only affected by its expected future cash flows and the required rate of return by equity

FIGURE 1
Level of gearing – traditional theory

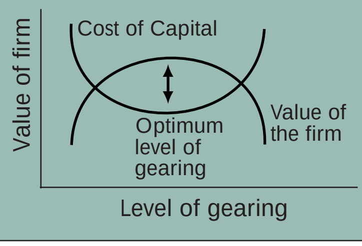
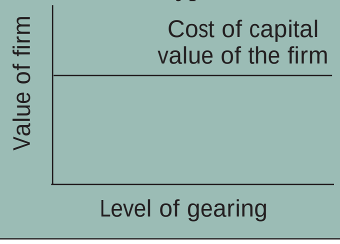


FIGURE 2
Modigliani and Miller's perfect market hypothesis



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investors. The market value of a company in such a market is, therefore, based on the present value of its cash flows and not on how they are distributed between its shareholders and long-term holders of debt capital.

Modigliani and Miller based their arguments on two important propositions. The first one was that an investor could always substitute personal gearing for corporate gearing by simply borrowing funds himself for investment purposes. The second was that the financial principle of arbitrage would apply, thereby making it impossible in a perfect market for an investor to make a capital gain.

Arbitrage is a financial term used to describe a situation where a security (or a similar security) trades at two different prices in two different markets. An investor is able to make an arbitrage gain by purchasing the asset at the lower price in one market and immediately selling it in the other for the higher price. In a perfect market, should the share price of two companies having the same operating income, but different capital structures, differ, then the action of arbitrageurs would ensure that the shares of the two companies would trade for the same price.

Modigliani and Miller provided mathematical evidence to show that, if investors engaged in what they called homemade gearing and arbitrage activity, the end result would be that the two companies would have the same share price.

But the problem for financial managers and investors is that the capital markets are not perfect. How Modigliani and Miller adapted their theory to take account of taxation and other factors is explored in next month's Back To Basics. ■

Humphrey Shaw is a senior lecturer in accounting and finance in the business school at the University of North London.