Stock Prices and Efficient Markets

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6. Summary: Basic determinants of bond and stock prices.

Applying the Value Equation to Stocks

We cannot apply the price/yield equation directly to stocks, because the stream of payments is so uncertain: dividend payments are uncertain even if the firm pays dividends, and the date and size of any other payment depends on unknown future events: stock buybacks or acquisition by a different firm.

For this reason, we generally interpret the stream of payments to be the firm's stream of *expected profits*. In principle the stockholders own these profits. Yet that profit stream is also uncertain.

Uncertain payments mean that we cannot use the price/yield equation to establish a direct connection between the stock's price and its rate of return.

Intrinsic Value of a Stock

For stocks we use the value equation in a different way, to calculate a stock's intrinsic value. For payments X we use expected future profits. For the rate of return R we use the *market rate of return on similar assets*: assets of similar liquidity, risk, tax treatment, etc. R thus represents the opportunity cost of capital.

This calculation gives the *intrinsic value* of the stock. If the I.V. exceeds the market price, then the stock is underpriced and represents a bargain. If the I.V. exceeds the intrinsic value, then the stock is overpriced.

$$I.V. = \frac{X_1}{(1+R)^1} + \frac{X_2}{(1+R)^2} + \ldots \frac{X_n}{(1+R)^n} + \ldots$$

Intrinsic Value of a Bond

The intrinsic value of a bond is calculated using similar principles. For payments X we use expected future payments of principal and interest, which may be significantly less than the promised payments if there is a significant probability of default. For the rate of return R we again use the *market rate of return on similar assets*, again representing the opportunity cost of capital.

If the I.V. exceeds the market price, then the bond is underpriced. If the I.V. exceeds the intrinsic value, then the bond is overpriced.

Theory of Efficient Financial Markets

The Theory of Efficient (financial) Markets says that the market price of a bond or stock equals its intrinsic value, calculated using:

(i) the expected payment stream based on *all currently available information*; and

(ii) the rate of return available on publicly traded assets of similar risk, liquidity, etc.

Extension to Other Assets

The Efficient Markets Theory can be extended beyond bonds and stocks to any asset, with these limitations:

- For some assets, it may be unclear how to calculate intrinsic value.
- The theory does not apply directly to assets that have value beyond their intrinsic value.

(The next section discusses extrinsic value.)

Rationale for the Theory

If an asset offers a higher rate of return then assets of similar risk etc., then investors will rush to buy that asset => the market price rises => the rate of return declines to match similar assets.

If people have private information indicating a higher payment stream, then they rush to buy that asset => the asset price rises to reflect that private information.

Implications of Efficient Financial Markets

The prices of financial assets respond to *new information*, to unexpected events or to information that changes *expectations* about future events.

Because new information can be positive or negative (otherwise it is not new), efficient market prices should follow something resembling a random walk.

Efficiency and Beating the Market

Because market prices already incorporate everyone's information, it is impossible to beat the market systematically (except by accepting more risk).

Beating the Market

In reality, financial markets are not perfectly efficient.

One reason: the market responds to new information quickly but not instantaneously.

=> The only "reliable" way to beat the market is to act on information before the rest of the market discovers it.

What Determines Bond Prices

The two basic determinants of bond prices.

Default and term risk:

Higher risk => lower prices.

Interest rates (source of most fluctuations):

Higher rates => lower prices.

What Determines Stock Prices

The two basic determinants of stock prices.

Expected profits (earnings):

Higher expected profits => higher stream of expected payments => higher prices.

Interest rates:

Higher rates => lower prices.