

## Corporate Finance, Module 3: "The Value of Common Stocks"

*Readings for the Fourteenth Edition (2022) of the Brealey, Myers, Allen, and Edmans text*

(The attached PDF file has better formatting.)

The sections in this posting are for the *fourteenth* edition of the Brealey, Myers, Allen, and Edmans text. You may also use the seventh through thirteenth editions; final exam problems can be answered from any edition.

{The Brealey, Myers, Allen, and Edmans textbook is excellent. We say to read certain sections and to skip others. This does not mean that certain sections are better; it means that the homework assignments and exam problems are based on the sections that you must read for this course. Some of the skipped sections are fascinating, but they are not tested.}

Module 3 covers common stock values. We use these formulas through the rest of the course. We estimate three items: stock price, capitalization rate, and present value of growth opportunities; know all three formulas.

Finance has many unanswered questions, and common stock valuation is a good example. We don't always know why a stock's price increases or decreases. We assume the stock price is the discounted value of future dividends, but there is no way to prove this, since we don't know the future dividends or the capitalization rate.

*Question:* Isn't this true by definition, since the capitalization rate is the internal rate of return of the common stock cash flows?

*Answer:* We assume that the capitalization rate reflects the systematic risk of the stock, so it does not change unless the systematic risk changes. If the stock price changes, we infer that the expected future dividends have changed or the systematic risk has changed. But the frequency and magnitude of common stock fluctuations seems greater than can be ascribed to changes in expected future dividends or systematic risk.

Valuing common stocks has two possible objectives:

- ! Investor value common stocks to increase earnings. You learn much about this subject from Brealey, Myers, Allen, and Edmans, but this is *not* the focus of the textbook.
- ! The firm's managers are expected to increase shareholders' value, so they must know what increases shareholders' value.

You might say: "This is obvious; to increase shareholder value, make more money." But many firms pursue objectives that do not enhance shareholder value. A firm may diversify to smooth its earnings. Its managers may say that smooth earnings are rewarded by higher stock prices; Brealey, Myers, Allen, and Edmans (and the empirical evidence) say that firm diversification rarely enhances shareholder value and often lowers it.

*Question:* What are the activities of firms covered in this text that do not enhance its value?

*Answer:* The major examples in this text are:

- ! Firms pay stockholder dividends, which may have negative net present value after considering federal income taxes; but firms that lower their dividend yields often have declines in their market values.
- ! Diversification generally reduces a firm's market value, but firms diversify. Mergers and acquisitions often reduce a firm's market value, but firms frequently engage in such mergers and acquisitions.
- ! Corporate debt often raises a firm's market value, yet few firms seem to hold sufficient debt to maximize their values.

*Question:* If managers do not seek to enhance shareholder value, what is their objective?

*Answer:* Managers (like everyone else) seek to enhance their own wealth. The Board of Directors structures manager compensation (e.g., bonus plans) to enhance shareholder value. Brealey, Myers, Allen, and Edmans discuss this in the capital structure modules.

The capital structure modules of this course use the *market values of debt and equity*. For equity, we use the stock price, not the book value of the firm. For debt, we discount future interest payments at the proper capitalization rate.

For valuing the tax shield of debt, we must know how changes in interest rates affect bond values. If the debt is perpetual, we need just the market value, not the yield to maturity; if the debt has a limited life, we need the yield to maturity as well.

Section 4-1 covers facts on stock trading; it is not tested on the final exam.

Section 4-2 Valuation by Comparables covers a practical method of common stock pricing; it is not tested on the final exam.

Read Section 4-3 Dividends and Stock Prices; know the formulas in the sub-section “dividends and capital gains” on pages 91 and 92, giving expressions 4.1A and 4.1B.

Read Section 4-4 “Dividend Discount Model Applications.” Know formulas 4.2 and 4.3 and Example 4.1, “Cost of Equity for Water Companies,” on page 96. Know the formulas for the payback ratio, the plowback ratio, the dividend growth rate (or the sustainable growth rate), and the return on equity on page 97.

The final exam problems will not test Two Stage DCF Models in the subsection “DCF Models with Two or More Stages of Growth.”

Read Section 4-5 “Income Stocks and Growth Stocks.” Know formulas 4.4 and 4.5 at the bottom of page 102. Final exam problems may ask you to compute PVGO, replicating the procedure in the text.

Read Section 4-6 “Valuation Based on Free Cash Flow.”

The final exam problems will not ask you to estimate horizon values.

The practice problems and final exam questions may ask you to derive the theoretical price for a stock given next year’s dividend, the capitalization rate, and the dividend growth rate. We do this for heuristic purposes, to make sure you understand the logic. In truth, the stock price is known; the capitalization rate and the dividend growth rate are unknown. For mature stocks, the dividend growth rate can sometimes be estimated from past experience, and we derive the market capitalization rate.

*Question:* If a firm tries to grow faster, does its value increase?

*Answer:* Rapidly growing firms have two attributes that affect their value: (i) the expected future growth raises their value but (ii) the attempt to grow faster often raises its systematic risk and its capitalization rate, lowering its value.

The PVGO is embedded in the current stock price, as we see when firms announce earnings. Suppose the expected earnings for the *average* firm is 12%.

- ! Firm A is a growth stock with expected earnings of 18%. If it announces earnings of 15% (above average), its stock price should fall.
- ! Firm B is an income stock with expected earnings of 8%. If it announces earnings of 10% (below average), its stock price should rise.

The example of Establishment Electronics (called Fledgling Electronics in previous editions and in parts of the text in the 14<sup>th</sup> edition) on pages 103-105) makes this clear. We can think of the present value of growth opportunities in two ways; the examples shows they are the same.

Many problems assume that dividends grow steadily; if you understand the dividend growth model, you can solve more complex problems as well. But constant growth is not realistic. Firms vary, with rapid growth, high mortality, and low dividend yields for new firms, moderate growth and low mortality for mature firms, and low growth for declining industries.

The *key takeaways* at the end of this chapter summarizes all the formulas needed for final exam problems. Know the six formulas on pages 110-111, and work through the practice problems on the discussion forum.

The problems at the end of each chapter are useful for checking that you understand the material. Review problems 6, 7, 8, 10a, 11.

Illustrative test questions, problems, and homework assignments are shown separately on the discussion forum.