

Corporate Finance, Module 3: “The Value of Bonds and Common Stocks”

Corporate finance module 3: Readings for Tenth Edition

(The attached PDF file has better formatting.)

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The page numbers here are for the *tenth* edition of Brealey and Myers. You may also use the seventh, eighth, or ninth editions of this text. The page numbers for earlier editions are in separate postings. The substantive changes in the textbook are slight among these editions, but the final exam problems are based on the tenth edition.

Module 3 covers common stock values. We use these formulas through the rest of the course. We might estimate three items: stock price, capitalization rate, or 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 that 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.

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

Rachel: 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 either the expected future stream of dividends has 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.

The introduction on page 74 shows two perspectives for this module:

- An investor values common stocks to enhance the potential yield (make higher profits). You learn much about this subject from Brealey and Myers, but this is *not* the focus of the textbook.
- The firm's managers are expected to increase shareholders' value. To do this, they must understand what increases shareholders' value.

You might say: “This is obvious; to increase shareholder value, make more money.” Well, it is not obvious; 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 and Myers (supported by empirical evidence) say that firm diversification rarely enhances shareholder value and often lowers it.

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

Rachel: 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. Similarly, mergers and acquisitions generally 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.

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

Rachel: 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 and Myers 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 on pages 75-76 covers facts on stock trading; it is not tested on the final exam.

Read Section 4.2, "How common stocks are valued," on pages 76-81, which derives the formula for common stock values, given on page 80. In this course, most final exam questions and homework assignments use the simplifications in Section 4.3 for the stock price and capitalization rate.

Read Section 4.3, "Estimating the cost of equity capital," on pages 81-86; know this section well. Pages 85-86, "DCF valuation with varying growth rates," extend the formula to more complex scenarios. The final exam has some problems with two stages: dividends for the first few years, then no dividends, or high growth for a few years, then low growth. These scenarios are more realistic, but we can rarely project dividend changes in future years. We use general assumptions: firms grow rapidly at first, when the market is new, and slow down when the market is mature. Focus on the intuition of the formulas, and you should be able to solve the final exam problems.

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.

Read Section 4.4 on pages 87-90, "The link between stock price and earnings per share," which has the most important *concepts* in this module. Know the formula for the present value of growth opportunities (PVGO) on page 88 and again on page 89.

Jacob: If a firm tries to grow faster, does its value generally increase?

Rachel: 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 Fledgling Electronics (pages 88-89) 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 has life cycles, 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.

Read Section 4.5, "Valuing a business by discounted cash flow," on pages 90-91, stopping before Estimating Horizon Value.

Read the Summary on page 94 and know all five formulas. Know especially the formulas for stock price, capitalization rate, and present value of growth opportunities.

Review problems 3, 4, and 5 on page 95; these are the basic formulas in the text.

Review problem 6 on page 95; some final exam problems have two stages, either for dividend payout rates or for growth.

Review problem 16 on page 96. This problem is detailed; it is most easily solved with a spread-sheet; the final exam problems are not this detailed.

Review problem 19 on page 97. This problem can be solved by pencil and paper.

The Reeby Sports mini-case on pages 99-100 is not required. It is worth reading, since it shows how these principles are used; but the final exam does not test this material.