

PART
One

Cost of Capital Basics

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CHAPTER 1

Defining Cost of Capital

Introduction
 Components of a Capital Structure
 Cost of Capital Is a Function of the Investment
 Cost of Capital Is Forward-looking
 Cost of Capital Is Based on Market Value
 Cost of Capital Is Usually Stated in Nominal Terms
 Cost of Capital Equals the Discount Rate
 Discount Rate Is Not the Same as Capitalization Rate
 Standard (Basis) of Value
 Summary

INTRODUCTION

The cost of capital is the expected rate of return that market participants require in order to attract funds to a particular investment. In economic terms, the cost of capital for a particular investment is an opportunity cost—the cost of foregoing the next best alternative investment. In this sense, it relates to the economic principle of substitution; that is, an investor will not invest in a particular asset if there is a more attractive substitute available at the same price.

The term *market* refers to the universe of investors who are reasonable candidates to fund a particular investment. Capital or funds are usually provided in the form of cash, although in some instances capital may be provided in the form of other assets. The cost of capital is usually expressed in percentage terms, that is, the annual amount of dollars that the investor requires or expects to realize from the investment, expressed as a percentage of the dollar amount invested.

As Ibbotson puts it:

The opportunity cost of capital is equal to the return that could have been earned on alternative investments at a similar level of risk and liquidity.¹

¹Roger Ibbotson, Yale University, 2013.

In other words, it is the competitive return available in the market on a comparable investment, with risk being the most important component of comparability. The degree of liquidity is one element of risk.

Put another way:

Since the cost of anything can be defined as the price one must pay to acquire it, the cost of capital is the return a company must promise in order to raise capital from the market, either debt or equity. A company does not set its own cost of capital; it must go to the market to discover it. Yet meeting this cost is the financial market's one basic yardstick for determining whether a company's performance is adequate.²

As the quote suggests, most of the information for estimating the cost of capital for a business, security, or project comes from the investment market. The cost of capital is always an *expected* (or forward-looking) return. While would-be investors can observe analysts' views as to expected returns at the time of their investment, there is no quotation available to investors for cost of capital comparable to stock quotes. Thus, we often form our views of the future by analyzing historical market data. Past returns at best provide some guidance as to what might be expected for a given level of risk.

The key component of the valuation process is pricing risk—that is the expected return for the given amount of risk. The cost of capital is the expected return appropriate for the expected level of risk. But often, observed returns do not match expected returns. That is the essence of risk. (See Chapter 6 for a more complete discussion of risk.)

COMPONENTS OF A CAPITAL STRUCTURE

The term *capital* in this context means the components of an entity's capital structure. The primary components of a capital structure include:

- Debt capital (liabilities on or off the balance sheet that lead some analysts to view lease obligations as debt capital)
- Preferred equity capital (i.e., stock, partnership, limited liability company, or other type of entity interests with preference features, such as seniority in receipt of dividends, distributions, or liquidation proceeds)
- Common equity capital (i.e., stock, partnership, limited liability company, or other type of entity interests at the lowest or residual level of the capital structure)

There may be more than one subcategory in any or all of the listed categories of capital. Also, there may be related forms of capital, such as warrants or options. Each component of an entity's capital structure has its own unique cost, depending primarily on its respective risk.

²Mike Kaufman, "Profitability and the Cost of Capital," Chapter 14 of William R. Lalli, ed., *Handbook of Budgeting*, 6th ed. (Hoboken, NJ: John Wiley & Sons, 2012): 265.

When we talk about the cost of common equity capital (e.g., the expected return to common equity investors), we usually use the phrase *cost of equity capital*.

Simply and cogently stated, “The cost of equity is the rate of return investors require on an equity investment in a firm.”³

When we talk about the cost of capital to the business overall (e.g., the average cost of capital for both equity ownership interests and debt interests), we commonly use the phrases *weighted average cost of capital* (WACC), *blended cost of capital*, or *overall cost of capital*. In rate-making cases, this array is sometimes called the *band of investment*.

The next quote explains how the cost of capital can be viewed from three different perspectives:

On the asset side of a firm’s balance sheet, it is the rate that should be used to discount to a present value the future expected cash flows. On the liability side, it is the economic cost to the business of attracting and retaining capital in a competitive environment, in which investors (capital providers) carefully analyze and compare all return-generating opportunities. On the investor’s side, it is the return one expects and requires from an investment in a business’s debt or equity. While each of these perspectives might view the cost of capital differently, they are all dealing with the same number.⁴

Recognizing that the cost of capital applies to both debt and equity investments, a well-known text states:

Since free cash flow is the cash flow available to all financial investors, the company’s WACC must also include the required return for each investor.⁵

COST OF CAPITAL IS A FUNCTION OF THE INVESTMENT

As Ibbotson puts it, “The cost of capital is a function of the investment, not the investor.”⁶ The cost of capital comes from the marketplace, and the marketplace is the pool of investors “pricing” the risk of a particular asset. Thus it represents the consensus assessment of the pool of investors that are participants in a particular market.

Brealey, Myers, and Allen state the same concept: “The opportunity cost of capital depends on the use to which that capital is put.”⁷ They make the point that it would be an error to evaluate a potential investment on the basis of a business’s overall cost of capital

³Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 3rd ed. (Hoboken, NJ: John Wiley & Sons, 2012): 183.

⁴2012 Ibbotson® *Stocks, Bonds, Bills, and Inflation® Valuation Yearbook* (Chicago: Morningstar, 2012): 21. Note that the firm’s after-tax cost of debt differs from investors’ returns on debt by the income tax savings to the firm due to the tax deductibility of interest expense (the tax-affect).

⁵Tim Koller, Marc Goedhart, and David Wessels, *Valuation: Measuring and Managing the Value of Companies*, 5th ed. (Hoboken, NJ: John Wiley & Sons, 2010): 231.

⁶Ibbotson Associates, “What Is the Cost of Capital?” 1999 *Cost of Capital Workshop* (Chicago: Ibbotson Associates, 1999).

⁷Richard A. Brealey, Stewart C. Myers, and Franklin Allen, *Principles of Corporate Finance*, 11th ed. (New York: McGraw-Hill/Irwin, 2014): 219.

if that investment were more or less risky than the business's existing business. "Each project should in principle be evaluated at its *own* opportunity cost of capital."⁸

When a business uses a given cost of capital to evaluate a commitment of capital to an investment or project, it often refers to that cost of capital as the *hurdle rate*. The hurdle rate is the minimum expected rate of return that the business would be willing to accept to justify making the investment. Depending on the degree of risk of the prospective investment compared with the business's overall risk, the hurdle rate for any given prospective investment may be at, above, or below the business's existing overall cost of capital.

Generally contemporary corporate finance holds that companies should be making investments, either capital investments or acquisitions, such that the returns will exceed the cost of capital for that investment. Doing so creates value and is sometimes referred to as *economic value added*, *economic profit*, or *shareholder value added*.⁹

COST OF CAPITAL IS FORWARD-LOOKING

The cost of capital represents investors' *expectations*. There are two basic elements to these expectations:

1. Risk-free rate, which includes:
 - **Rental rate.** Real return for lending the funds free of default risk, thus foregoing consumption for which the funds otherwise could be used.
 - **Inflation (and inflation risk premium).** Expected rate of inflation over the term of the risk-free investment (and the risk that expected inflation will increase).
 - **Maturity risk** (also called **investment rate risk** or **term risk**). Risk that the investment's principal market value will rise or fall during the period to maturity as a function of changes in the general level of interest rates.
2. Risk premium—the added return expected by market participants to compensate them for uncertainty as to when and how much cash flow or other economic income will be received.

Risk is discussed more fully in Chapter 6.

The combination of the three items comprising the risk-free rate is sometimes referred to as the *time value of money*. While these expectations, including assessment of risk, may be different for different investors, the market tends to form a consensus with respect to a particular investment or category of investments. That consensus determines the cost of capital for investments of varying levels of risk.

The cost of capital, derived from investors' expectations and the market's consensus of those expectations, is applied to *expected economic income, usually measured in terms of net cash flows*. We convert the stream of expected economic benefits to its present value equivalent to compare investment alternatives of similar or

⁸Ibid.

⁹See, for example, Tim Koller, Marc Goedhart, and David Wessels, *Valuation: Measuring and Managing the Value of Companies*, 5th ed. (Hoboken, NJ: John Wiley & Sons, 2010); also see Alfred Rappaport, *Creating Shareholder Value: A Guide for Managers and Investors*, revised ed. (New York: Free Press, 1997).

differing levels of risk. *Present value*, in this context, refers to the dollar amount that a rational and well-informed investor would be willing to pay today for the stream of expected economic income. In mathematical terms, the cost of capital is the percentage rate of return that equates the stream of expected economic income with its present cash value (see Chapter 4).

COST OF CAPITAL IS BASED ON MARKET VALUE

The cost of capital is the expected rate of return on some base value. The base value is measured as the market value of an asset (or liability), not its book value, par value, or carrying value.

For example, the yield to maturity shown in the bond quotations in the financial press is based on the closing market price of a bond, not on its face value. Similarly, the implied cost of equity for a company's stock is based on the market price per share at which it trades, not on the company's book value per share of stock.

The cost of capital is estimated from market data. These data refer to expected returns relative to market prices. By applying the cost of capital derived from market expectations to the expected net cash flows (or other measure of economic income) from the investment or project under consideration, the market value can be estimated.

COST OF CAPITAL IS USUALLY STATED IN NOMINAL TERMS

Keep in mind that we have talked about expectations including inflation. Assuming inflationary expectations, the return an investor requires includes compensation for reduced purchasing power of the currency over the life of the investment. Therefore, when the analyst or investor applies the cost of capital to expected returns in order to estimate value, he or she must also include an expected inflation rate in those expected returns.

This obviously assumes that investors have reasonable consensus expectations regarding inflation. For countries subject to unpredictable hyperinflation, it is sometimes more practical to estimate the cost of capital in "real" terms (a rate of return that does not include an inflation expectation) rather than in nominal terms and apply it to expected net cash flows expressed in real terms. We discuss the problems in estimating cash flows and cost of capital in real terms in Chapter 34.

COST OF CAPITAL EQUALS THE DISCOUNT RATE

The essence of the cost of capital is that it is the percentage return that equates expected economic income with present value. The expected rate of return in this context is called a *discount rate*. By *discount rate*, the financial community means a *compounded rate* (typically expressed as an annual rate) at which each increment of expected economic income is discounted back to its present value. A discount rate reflects both the time value of money and risk-profile of the expected income stream. Therefore, in its totality it represents the cost of capital. The sum of the discounted present values of each future period's expected net cash flow or other measure of return equals the present value of the investment, reflecting the expected amounts of

return over the life of the investment. The terms *discount rate*, *cost of capital*, and *required rate of return* are often used interchangeably.

The economic income referenced here represents *total expected benefits* in terms of money or money's worth. In other words, this economic income includes increments of cash flow realized by the investor while holding the investment, as well as proceeds to the investor upon liquidation of the investment. The rate at which these expected future total returns are reduced to present value is the discount rate, which is the *cost of capital* (required rate of return) for a particular investment.

DISCOUNT RATE IS NOT THE SAME AS CAPITALIZATION RATE

Because some practitioners and their clients confuse the terms, we point out here that discount rate and capitalization rate are two distinctly different concepts. *Discount rate* equates to *cost of capital*. It is a rate applied to *all* expected economic income to convert the expected economic income stream to a present value.

A capitalization rate, however, is merely a divisor applied to *one single* element or period of the economic income stream to estimate a present value. The only instance in which the discount rate is equal to the capitalization rate is when each future period's economic income is equal (i.e., absent any growth or decline), and the economic income is expected to continue into perpetuity. One of the few examples would be a preferred stock paying a fixed dividend amount per share in perpetuity.

The relationship between discount and capitalization rates is discussed in Chapter 4.

STANDARD (BASIS) OF VALUE

Throughout this book, we discuss expected economic income and cost of capital in the context of various definitions of the generic term *value*. The term has many meanings.

In this book, a *standard of value* (titled *basis of value* by the International Valuation Standard Council [IVSC] Glossary of Valuation Terms) is a definition of the type of value being sought. The standard of value addresses the questions: "value to whom?" and "value under what circumstances?" We will identify the applicable standard of value and its meaning when we are speaking about a particular application. For background, a quick summary here would be useful.¹⁰

¹⁰Definitions of fair market value, investment value, and intrinsic value are included in the International Glossary of Business Valuation Terms, jointly developed by the American Institute of Certified Public Accountants, American Society of Appraisers, Canadian Institute of Chartered Business Valuators, National Association of Certified Valuation Analysts, and the Institute of Business Appraisers. For a more complete discussion, see Chapter 2 in Shannon P. Pratt, with Alina Niculita, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, 5th ed. (New York: McGraw-Hill, 2008); and Jay Fishman, Shannon Pratt, and William Morrison, *Standards of Value: Theory and Applications*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 2013). Definition of basis of value, market value, fair value, and investment value are included in the International Valuation Standards Council's International Glossary of Valuation Terms, available at: www.ivsc.org/glossary.

Fair market value is the value standard used in most federal income tax matters, including gift and estate and income taxes. In general, it is the price at which the property would change hands between a hypothetical willing buyer and a hypothetical willing seller. The pool of willing buyers and willing sellers for a property defines the “market” for that property.¹¹ It is an objective standard.

Arm’s length value is the value (in terms of price and terms) at which a transaction would take place between unrelated buyers and sellers.¹²

Fair value has several separate and unrelated meanings depending on the context in which it is used.

Fair value under state statutes, in most states, is the statutory standard of value in cases of dissenting stockholder appraisal rights and shareholder (or partner) oppression cases. Definitions vary from state to state.

Fair value under IVSC is “the estimated price for the transfer of an asset or liability between identified knowledgeable and willing parties that reflects the respective interests of those parties.”

Fair value for financial reporting is defined by ASC 820, *Fair Value Measurements* (formerly FASB Statement No. 157, *Fair Value Measurements*), which codified Generally Accepted Accounting Principles (GAAP) and is required for financial reporting by the Securities and Exchange Commission (SEC). The definition of fair value for financial reporting is now aligned between ASC 820 and International Financial Reporting Standards (IFRS) 13. It is the standard of value for reporting of market-based financial statements.

While there is no definition of *fair value under the bankruptcy code* the federal definition of *insolvency* is defined as a “financial condition such that the sum of [the] entity’s debts is greater than all of [the] entity’s property, at a fair valuation” (U.S.C. §101(32)/1/201).

In the United States, the most widely recognized and accepted standard of value related to real estate appraisals is *market value*, which is essentially equivalent to fair market value.

Market value under IVSC is “the estimated amount for which an asset or liability should exchange on the date of valuation between a willing buyer and a willing seller in an arm’s length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion.”

Investment value is the specific value of an investment to a particular investor or class of investors based on individual investment requirements. The IVSC’s definition of *investment value* is very similar: the value of an asset to the owner or a prospective owner for individual investment or operational objectives. There can be different costs of capital to different investors, depending on different circumstances and perceptions.

Intrinsic value (sometimes called *fundamental value*) is the specific value of an investment based on its perceived characteristics inherent in the investment but not

¹¹See, for example, explanation by Mark Lee in Shannon P. Pratt, *Business Valuation Discounts and Premiums*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 2009): 34–37. Lee makes a distinction between the stock market (diversified buyers and sellers) and the mergers and acquisitions market.

¹²David Laro and Shannon Pratt, *Business Valuation and Federal Taxes: Procedure, Law, and Perspective*, 2nd Edition (Hoboken, NJ: John Wiley & Sons, 2011): 115. David Laro is a senior judge on the U.S. Tax Court.

based on the value to any one investor or class of investors. It is sometimes referred to as “stand-alone” fair market value, or “stand-alone” value.

SUMMARY

The cost of capital estimate is the essential link that enables us to convert a stream of expected income into an estimate of present value.

Cost of capital has several key characteristics:

- It is *market driven*. It is the expected rate of return that the market requires to commit capital to an investment.
- It is *not often* directly observable.
- It is *forward-looking*, based on *expected* returns. Past returns, at best, provide guidance as to what to expect in the future.
- It is a function of the *investment*, not a particular *investor*. To make the discount rate a function of the particular investor’s perceptions implies investment value rather than fair market value or fair value.
- The base against which cost of capital is measured is *market value*.
- It is usually measured in *nominal terms*, which includes the expected rate of inflation.
- It is the link, called a *discount rate*, which equates expected future returns for the life of the investment with the present value of the investment at a given date.

In the next chapter, we will turn to applications of the cost of capital.