PART

One

Cost of Capital Basics

CHAPTER 1

Defining Cost of Capital

INTRODUCTION

The cost of capital is the expected rate of return that the 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 forgoing 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.

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 usually is expressed in percentage terms, that is, the annual amount of dollars that the investor requires or expects to realize, expressed as a percentage of the dollar amount invested.

Put another way:

> Since the cost of anything can be defined as the price one must pay to get it, the cost of capital is the return a company must promise in order to get capital from the market, either debt or equity. A company does not set its own cost of capital; it must go into 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.[1]

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. Thus, analysts and would-be investors never actually observe the market's views as to expected returns at the time of their investment. However, we often form our views of the future by analyzing historical market data.

As Roger Ibbotson put it, "The Opportunity Cost of Capital is equal to the return that could have been earned on alternative investments at a specific level of risk."[2] 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 valuation process is one of analysis of expected returns and pricing of risk. The cost of capital is the return appropriate for the expected level of risk in the expected returns. It is the price of risk. But often observed returns do not match expected returns. That is the essence of risk. (See Chapter 5 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
- 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 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.

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.

[1] Mike Kaufman, "Profitability and the Cost of Capital," Chapter 8 of Robert Rachlin, ed., *Handbook of Budgeting*, 4th ed. (New York: John Wiley & Sons, 1999).

[2] Ibbotson Associates, "What Is the Cost of Capital?" *1999 Cost of Capital Workshop*, Chicago: Ibbotson Associates, 1999.

> 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.[3]

Simply and cogently stated, "The cost of equity is the rate of return investors require on an equity investment in a firm."[4]

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

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 (debt, equity, and hybrid securities), the company's Weighted Average Cost of Capital (WACC) must 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.

Allen, Brealey, and Myers state the same concept: "The true 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 if that investment were more or less risky than the business's existing

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[3] *Stocks, Bonds, Bills and Inflation Valuation Yearbook* (Chicago: Morningstar, 2009), 21.

[4] Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 2002), 182.

[5] Tim Koller, Marc Goedhart, and David Wessels, *Valuation: Measuring and Managing the Value of Companies*, 4th ed. (Hoboken, NJ: John Wiley & Sons, 2005), 291.

[6] Ibbotson Associates, "What Is the Cost of Capital?" *1999 Cost of Capital Workshop*, Chicago: Ibbotson Associates, 1999.

[7] Richard A. Brealey, Stewart C. Myers, and Franklin Allen, *Principles of Corporate Finance*, 9th ed. (Boston: Irwin McGraw-Hill, 2008), 239.

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. As noted, the hurdle rate for any given prospective investment may be at, above, or below the business's overall cost of capital, depending on the degree of risk of the prospective investment compared with the business's overall risk.

The most popular focus of contemporary corporate finance is that companies should be making investments, either capital investments or acquisitions, from which 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 three elements to these expectations:

1. The risk-free rate, which includes:
   - *Rental rate*. A real return for lending the funds risk-free, thus forgoing consumption for which the funds otherwise could be used.
   - *Inflation*. The expected rate of inflation over the term of the risk-free investment.
   - *Maturity risk or investment rate risk*. The 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—the uncertainty as to when and how much cash flow or other economic income will be received. (Risk is discussed more fully in Chapter 5.)

It is the combination of the two items comprising the risk-free rate that 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 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

[8] Ibid.

[9] See, for example, Tim Koller, Marc Goedhart, and David Wessels, *Valuation: Measuring and Managing the Value of Companies*, 4th ed. (Hoboken, NJ: John Wiley & Sons, 2005); also see Alfred Rappaport, *Creating Shareholder Value: A Guide for Managers and Investors*, revised ed. (New York: Free Press, 1997).

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. That base value is measured as the market value of an asset, 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 expected inflation 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 rather than in nominal terms and apply it to expected net cash flows expressed in real terms. We discuss the problems with estimating cash flows and cost of capital in real terms in Chapter 19.

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 an *annually compounded 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. Therefore, in its totality it represents the cost of capital. The sum of the discounted present values of each future period's 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 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 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., no growth), 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 into perpetuity.

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

STANDARD 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* 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. But for background, a quick summary here would be useful.[10]

Fair market value is the value standard used in many federal income tax matters. But in transfer pricing matters under Internal Revenue Code Section 482, the standard of value is the *arm's length standard*. The understanding of these terms is based on the Internal Revenue Code, Treasury regulations, and interpretations by various courts.

[10] Definitions 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, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, 5th ed. (New York: McGraw-Hill, 2008).

Fair value is the standard of value used in financial reporting and is defined in Financial Accounting Standards Board pronouncements. *Fair value* has a totally different meaning in another context. *Fair value* is typically the applicable standard of value in fairness and shareholder disputes and is defined by state statute and court interpretations.

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

Investment value is the specific value of an investment to a particular investor or class of investors based on individual investment requirements. *Intrinsic value* (sometimes called *fundamental value*) is the specific value of an investment based on its perceived characteristics inherent in the investment but not based on the value to any one investor or class of investors.

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* 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*, that equates expected future returns for the life of the investment with the present value of the investment at a given date.