

Part 1

Cost of Capital Basics

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Defining Cost of Capital

Introduction

Components of a Company's 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, Not Book 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

Summary

INTRODUCTION

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 provide funds for 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 any company, security, or project comes from the investment markets. The cost of capital is always an *expected* (or forward-looking) return. Thus, analysts and would-be investors never actually observe it. We analyze many types of market data to estimate the cost of capital for a company, security, or project in which we are interested.

¹ Mike Kaufman, "Profitability and the Cost of Capital," in Chapter 8 of *Handbook of Budgeting*, 4th ed., ed. Robert Rachlin (New York: John Wiley & Sons, 1999), 8–3.

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.

COMPONENTS OF A COMPANY’S 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 (stock or partnership interests with preference features, such as seniority in receipt of dividends or liquidation proceeds)
- Common equity (stock or partnership 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 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. On the liability side, it is the economic cost to the firm 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 firm’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

When we talk about the cost of ownership capital (e.g., the expected return to a stock or partnership investor), we usually use the phrase *cost of equity capital*. When we talk about the cost of capital to the firm overall (e.g., the average cost of capital for both equity ownership interests and debt), we commonly use the phrases *weighted average cost of capital (WACC)* or *blended cost of capital* overall cost of capital.

Simply and cogently stated, “The cost of equity is the rate of return investors require on an equity investment in a firm.”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 (debt, equity, and hybrid securities), the company’s Weighted Average Cost of Capital (WACC) must include the required return for each investor.⁵

² Ibbotson Associates, *Cost of Capital Workshop* (Chicago: Ibbotson Associates, 1999).

³ *Stocks, Bonds, Bills and Inflation Valuation Edition 2007 Yearbook* (Chicago: Morningstar, 2007), 23.

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.

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. The marketplace is the universe of investors “pricing” the risk of a particular asset.

Allen, Brealey, and Myers state the same concept: “The true cost of capital depends on the use to which the capital is put.”⁷ They make the point that it would be an error to evaluate a potential investment on the basis of a company’s overall cost of capital if that investment were more or less risky than the company’s existing business. “Each project should in principle be evaluated at its *own* opportunity cost of capital.”⁸

When a company 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 company 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 company’s overall cost of capital, depending on the degree of risk of the prospective investment compared to the company’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 *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 elements to these expectations:

1. The risk-free rate, which includes:
 - The “real” rate of return—the amount (excluding inflation) investors expect to obtain in exchange for letting someone else use their money on a risk-free basis.
 - Expected inflation—the expected depreciation in purchasing power while the money is in use.
2. Risk—the uncertainty as to when and how much cash flow or other economic income will be received.

It is the combination of the first two items 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 cash flows, in order to estimate present values or 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

⁶ Ibbotson Associates, *Cost of Capital Workshop* (Chicago: Ibbotson Associates, 1999).

⁷ Richard A. Brealey, Stewart C. Myers, and Franklin Allen, *Principles of Corporate Finance*, 8th ed. (Boston: Irwin McGraw-Hill, 2006), 216.

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*, rev. ed. (New York: The Free Press, 1997).

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 income with its present cash value (see Chapter 4).

COST OF CAPITAL IS BASED ON MARKET VALUE, NOT BOOK 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. 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. It was noted earlier that the cost of capital is estimated from market data. This data refers to expected returns relative to market prices. By applying the cost of capital derived from market expectations to the expected 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. The return an investor requires includes compensation for reduced purchasing power of the dollar 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 cost of capital in real terms rather than in nominal terms.¹⁰

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 (e.g., net cash flow, net income, or some other measure of economic benefits) is discounted back to its present value. A discount rate reflects both time value of money and risk and therefore represents the cost of capital. The sum of the discounted present values of each future period's incremental 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.

¹⁰ We discuss the problems with estimating cash flows and cost of capital in real terms in Chapter 18.

DISCOUNT RATE IS NOT THE SAME AS CAPITALIZATION RATE

Because some practitioners confuse the terms, we point out here that discount rate and capitalization rate are two distinctly different concepts. As noted in the previous section, discount rate equates to cost of capital. It is a rate applied to *all* expected incremental returns to convert the expected return stream to a present value.

A capitalization rate, however, is merely a divisor applied to *one single* element of return to estimate a present value. The only instance in which the discount rate is equal to the capitalization rate is when each future cash flow is equal (i.e., no growth), and the expected returns are in perpetuity. One of the few examples would be a preferred stock paying a fixed amount of dividend per share in perpetuity.

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

SUMMARY

As stated in the introduction, “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 a function of the *investment*, not a particular *investor*; to make the discount rate a function of the particular investor would imply changing the standard of value to what is commonly termed investment value rather than fair market value.
- It is *forward looking*, based on *expected* returns. Past returns are, at best, to provide guidance as to what to expect in the future.
- The base against which cost of capital is measured is *market value*, not book value.
- It is usually measured in *nominal terms*, that is, including expected 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.

