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CFA Program

CORPORATE ISSUERS

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CONTENTS

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Corporate Issuers

LEARNING MODULE

1

Analysis of Dividends and Share Repurchases

by Gregory Noronha, PhD, CFA, and George H. Troughton, PhD, CFA.

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LEARNING OUTCOMES

Mastery	*The candidate should be able to:*
☐	describe the expected effect of regular cash dividends, extra dividends, liquidating dividends, stock dividends, stock splits, and reverse stock splits on shareholders' wealth and a company's financial ratios
☐	compare theories of dividend policy and explain implications of each for share value given a description of a corporate dividend action
☐	describe types of information (signals) that dividend initiations, increases, decreases, and omissions may convey
☐	explain how agency costs may affect a company's payout policy
☐	explain factors that affect dividend policy in practice
☐	calculate and interpret the effective tax rate on a given currency unit of corporate earnings under double taxation, dividend imputation, and split-rate tax systems
☐	compare stable dividend with constant dividend payout ratio, and calculate the dividend under each policy
☐	describe broad trends in corporate payout policies
☐	compare share repurchase methods
☐	calculate and compare the effect of a share repurchase on earnings per share when 1) the repurchase is financed with the company's surplus cash and 2) the company uses debt to finance the repurchase
☐	calculate the effect of a share repurchase on book value per share
☐	explain the choice between paying cash dividends and repurchasing shares
☐	calculate and interpret dividend coverage ratios based on 1) net income and 2) free cash flow
☐	identify characteristics of companies that may not be able to sustain their cash dividend

1 DIVIDENDS: FORMS AND EFFECTS ON SHAREHOLDER WEALTH AND FINANCIAL RATIOS

☐ describe the expected effect of regular cash dividends, extra dividends, liquidating dividends, stock dividends, stock splits, and reverse stock splits on shareholders' wealth and a company's financial ratios

This reading covers the features and characteristics of dividends and share repurchases as well as the theory and practice of corporate payout policy. A **dividend** is a distribution paid to shareholders. Dividends are declared (i.e., authorized) by a corporation's board of directors, whose actions may require approval by shareholders (e.g., in most of Europe) or may not require such approval (e.g., in the United States). Shares trading **ex-dividend** refers to shares that no longer carry the right to the next dividend payment. The **ex-dividend date** is the first date that a share trades without (i.e., "ex") this right to receive the declared dividend for the period. All else holding constant, on the ex-dividend date the share price can be expected to drop by the amount of the dividend. In contrast to the payment of interest and principal on a bond by its issuer, the payment of dividends is discretionary rather than a legal obligation and may be limited in amount by legal statutes and debt contract provisions. Dividend payments and interest payments in many jurisdictions are subject to different tax treatment at both the corporate and personal levels.

In this reading, we focus on dividends on common shares (as opposed to preferred shares) paid by publicly traded companies. A company's **payout policy** is the set of principles guiding cash dividends and the value of shares repurchased in any given year. Payout policy (also called distribution policy) is more general than dividend policy because it reflects the fact that companies can return cash to shareholders by means of share repurchases and cash dividends. One of the longest running debates in corporate finance concerns the impact of a company's payout policy on common shareholders' wealth. Payout decisions, along with financing (capital structure) decisions, generally involve the board of directors and senior management and are closely watched by investors and analysts.

Dividends and share repurchases concern analysts because, as distributions to shareholders, they affect investment returns and financial ratios. The contribution of dividends to total return for stocks is formidable. For example, the total compound annual return for the S&P 500 Index with dividends reinvested from the beginning of 1926 to the end of 2018 was 10.0%, as compared with 5.9% on the basis of price alone. Similarly, from 1950 to 2018 the total compound annual return for the Nikkei 225 Index with dividends reinvested was 11.1%, as compared with 8.0% on the basis of price alone. Dividends also may provide important information about future company performance and investment returns. Analysts should strive to become familiar with all investment-relevant aspects of dividends and share repurchases.

Dividends: Forms and Effects on Shareholder Wealth and Issuing Company's Financial Ratios

Companies can pay dividends in a number of ways. Cash dividends can be distributed to shareholders through regular, extra (also called special or irregular), or liquidating dividends. Other forms of dividends include stock dividends and stock splits. In this section, we review the different forms that dividends can take and explain their impact on both the shareholder and the issuing company.

Regular Cash Dividends

Many companies choose to distribute cash to their shareholders on a regular schedule. The customary frequency of payment, however, may vary among markets. In the United States and Canada, most companies that pay dividends choose a quarterly schedule of payments, whereas in Europe and Japan, the most common choice is to pay dividends twice a year (i.e., semiannually). Elsewhere in Asia, companies often favor paying dividends once a year (i.e., annually). Exhibit 1 summarizes typical dividend payment schedules for selected markets.

Exhibit 1: Geographic Differences in Frequency of Payment of Cash Dividends

Market	Most Common Frequency
Canada, United States	Quarterly
Australia, Japan, Saudi Arabia	Semiannually
Egypt, Germany, Thailand	Annually

Most companies that pay cash dividends strive to maintain or increase their dividends. A record of consistent dividends over a long period of time is important to many companies and shareholders because it is widely interpreted as evidence of consistent profitability. At a minimum, most dividend-paying companies strive not to reduce dividends when they are experiencing temporary problems.

Regular dividends, and especially increasing regular dividends, also signal to investors that their company is growing and will share profits with its shareholders. Perhaps more importantly, management can use dividend announcements to communicate confidence in the company's future. Accordingly, an increase in the regular dividend (especially if it is unexpected) often has a positive effect on share price.

Extra or Special (Irregular) Dividends

An **extra dividend** or **special dividend** (also known as an irregular dividend) is either a dividend paid by a company that does not pay dividends on a regular schedule or a dividend that supplements regular cash dividends with an extra payment. These extra dividend payments may be brought about by special circumstances. For example, in December 2018 Hong Kong Stock Exchange (HKEX)-listed Tencent Holdings, a leading provider of internet value-added services, declared a special dividend of HKD250 million to its shareholders after its spin-off Tencent Music went public in New York. This special dividend was approximately 3.5% of Tencent's annual dividend. Like many high-growth technology companies, Tencent had a history of paying very low dividends—with a yield of just 0.26% for 2018 (compared to an average of 4.6% for all stocks listed on the Hong Kong Stock Exchange).

Companies, particularly in cyclical industries, have sometimes chosen to use special dividends as a means of distributing more earnings only during strong earnings years. During economic downturns, when earnings are low or negative, cash that might otherwise be used for dividends is conserved. For example, a company may choose to declare a small regular dividend, and then when operating results are good, it may declare an extra dividend at the end of the year. In May 2018, Mumbai-listed Ingersoll-Rand (India) Ltd, a diversified industrial manufacturer, declared a special "second interim" dividend of Rs202 in addition to the regular annual Rs6 dividend, whereas for the prior 2 decades, the company had paid only the regular Rs6 dividend (excepting a special 2011 Rs24 dividend). The 2018 second interim dividend was paid out of current year profits and accumulated surpluses from earlier years. At the time, the company's reported year-on-year net profit growth was 25%.

Example 1 concerns a hypothetical company with a stated **dividend policy**—the strategy a company follows to determine the amount and timing of dividend payments—regarding the payment of extra dividends. In the example, the **dividend payout ratio** refers to common share cash dividends divided by net income available to common shares over the same time period.

EXAMPLE 1

AfriSage Technologies' Dividend Policy

AfriSage Technologies (AST), a hypothetical company, is a leading provider of commercial and enterprise software solutions in Southern African Development Community (SADC) countries. AST's financial data are reported in South African Rand (ZAR). In November 2017, AfriSage's board of directors modified its dividend policy, stating:

The company will target an investment-grade, long-term credit rating to secure strategic financial flexibility for investments in future growth. The ordinary dividend shall be at least 35% of net income. Excess capital will be returned to shareholders after the board has taken into consideration the company's cash at hand, projected cash flow, and planned investment from a medium-term perspective as well as capital market conditions.

Selected AfriSage Financial per Share Data

	2018	2017
Shares outstanding	632.5 million	632.5 million
Earnings per share	ZAR14.23	ZAR12.65
Cash dividends per share	ZAR7.61	ZAR10.68

1. Calculate the cash dividend payout ratio for 2018 and 2017.

Solution:

With the same number of shares outstanding, the dividend payout ratio on a per share basis is dividends per share divided by earnings per share.

For 2018: ZAR7.61/ZAR14.23 = 53.5%.

For 2017: ZAR10.68/ZAR12.65 = 84.4%.

2. Assuming the board's new dividend policy became effective in 2018, calculate the amount of the annual ordinary dividend on the basis of AfriSage's minimum payout policy in 2018 and the amount that could be considered an extra dividend.

Solution:

Under a policy of 35% of earnings, the minimum amount of dividends would be ZAR14.23 × 0.35 = ZAR4.98. The amount of the extra dividend would then be ZAR7.61 − ZAR4.98 = ZAR2.63.

Liquidating Dividends

A dividend may be referred to as a **liquidating dividend** when a company:

- goes out of business and the net assets of the company (after all liabilities have been paid) are distributed to shareholders;
- sells a portion of its business for cash and the proceeds are distributed to shareholders; or
- pays a dividend that exceeds its accumulated retained earnings (impairs stated capital).

These points illustrate that a liquidating dividend is a return of capital rather than a distribution from earnings or retained earnings.

Stock Dividends

Stock dividends are a non-cash form of dividends. With a **stock dividend** (also known as a **bonus issue of shares** or a scrip dividend), the company distributes additional shares (typically 2–10% of the shares then outstanding) of its common stock to shareholders instead of cash. Although the shareholder's total cost basis remains the same, the cost per share held is reduced. For example, if a shareholder owns 100 shares with a purchase price of US$10 per share, the total cost basis would be US$1,000. After a 5% stock dividend, the shareholder would own 105 shares of stock at a total cost of US$1,000. However, the cost per share would decline to US$9.52 (US$1,000/105).

Superficially, the stock dividend might seem an improvement on the cash dividend from both the shareholders' and the company's point of view. Each shareholder ends up with more shares, which did not have to be paid for, and the company did not have to spend any actual money issuing a dividend. Furthermore, stock dividends are generally not taxable to shareholders because a stock dividend merely divides the "pie" (the market value of shareholders' equity) into smaller pieces. The stock dividend, however, does not affect the shareholder's proportionate ownership in the company because other shareholders receive the same proportionate increase in shares. Additionally, the stock dividend does not change the value of each shareholder's ownership position because the increase in the number of shares held is accompanied by an offsetting decrease in earnings per share, and other measures of value per share, resulting from the greater number of shares outstanding.

The second point is illustrated in Exhibit 2, which shows the impact of a 3% stock dividend to a shareholder who owns 10% of a company with a market value of US$20 million. As one can see, the market value of the shareholder's wealth does not change, assuming an unchanged **price-to-earnings ratio** (the ratio of share price, P, to earnings per share, E, or P/E). That assumption is reasonable because a stock dividend does not alter a company's asset base or earning power. (As the reader will see shortly, the same is true of a stock split.) The total market value of the company is unaffected by the stock dividend because the decrease in the share price is exactly offset by the increase in the number of shares outstanding.

Exhibit 2: Illustration of the Effect of a Stock Dividend

	Before Dividend	After Dividend
Shares outstanding	1,000,000	1,030,000
Earnings per share	US$1.00	US$0.97 (1,000,000/1,030,000)
Stock price	US$20.00	US$19.4175 (20 × 0.9709)

	Before Dividend	After Dividend
P/E	20	20
Total market value	US$20 million	US$20 million (1,030,000 × US$19.4175)
Shares owned	100,000 (10% × 1,000,000)	103,000 (10% × 1,030,000)
Ownership value	US$2,000,000 (100,000 × US$20)	US$2,000,000 (103,000 × US$19.4175)

Note: The exhibit shows intermediate results rounded to four decimal places, but final results are based on carrying intermediate results at full precision.

Companies that regularly pay stock dividends see some advantages to this form of dividend payment. It favors long-term investors, which, in turn, may lower the company's cost of equity financing. The payment of a stock dividend also helps increase the stock's float, which improves the liquidity of the shares and dampens share price volatility.

A traditional belief is that a lower stock price will attract more investors, all else equal. US companies often view the optimal share price range as US$20 to US$80. For a growing company, payment of a regular stock dividend is more likely to help keep the stock in the "optimal" range. In February 2019, for example, Massmart—the second-largest distributor of consumer goods in Africa—changed its established policy of paying interim and final dividends in cash and instead declared a scrip dividend for the 2018 final dividend. When the company pays the same dividend rate on the new shares as it did on the old shares, a shareholder's dividend income increases; however, the company could have accomplished the same result by increasing the cash dividend.

From a company's perspective, the key difference between a stock dividend and a cash dividend is that a cash dividend affects a company's capital structure, whereas a stock dividend has no economic impact on a company. Cash dividends reduce assets (because cash is being paid out) and shareholders' equity (by reducing retained earnings). All else equal, liquidity ratios, such as the cash ratio (cash and short-term marketable securities divided by current liabilities) and current ratio (current assets divided by current liabilities), should decrease, reflecting the reduction in cash. Financial leverage ratios, such as the debt-to-equity ratio (total debt divided by total shareholders' equity) and debt-to-assets ratio (total debt divided by total assets), should also increase. Stock dividends, on the other hand, do not affect assets or shareholders' equity. Although retained earnings are reduced by the value of the stock dividends paid (i.e., by the number of shares issued × price per share), contributed capital increases by the same amount (i.e., the value of the shares issued). As a result, total shareholders' equity does not change. Neither stock dividends nor stock splits (which are discussed in the next section) affect liquidity ratios or financial leverage ratios.

Stock Splits

Stock splits are similar to stock dividends in that they have no economic effect on the company, and the shareholders' total cost basis does not change. For example, if a company announces a two-for-one stock split, each shareholder will be issued an additional share for each share currently owned. Thus, a shareholder will have twice as many shares after the split as before the split. Therefore, earnings per share (and all other per share data) will decline by half, leaving the P/E and equity market value unchanged. Assuming the corporation maintains the same dividend payout ratio as before the split, **dividend yield** (annual dividends per share divided by share price) will also be unchanged. Apart from the effect of any information or benefit that investors perceive a stock split to convey, stock splits (like stock dividends) should be neutral in their effect on shareholders' wealth.

Although two-for-one and three-for-one stock splits are the most common, such unusual splits as five-for-four or seven-for-three sometimes occur. It is important for shareholders to recognize that their wealth is not changed by the stock split (just as it was not changed for a stock dividend, all else equal). Exhibit 3 shows an example of a two-for-one split and its impact on stock price, earnings per share, dividends per share, dividend payout ratio, dividend yield, P/E, and market value.

Exhibit 3: Before and After a Two-for-One Stock Split

	Before Split	After Split
Number of shares outstanding	4 million	8 million
Stock price	€40.00	€20.00 (€40/2)
Earnings per share	€1.50	€0.75 (€1.50/2)
Dividends per share	€0.50	€0.25 (€0.50/2)
Dividend payout ratio	1/3	1/3
Dividend yield	1.25%	1.25% (€0.25/€20.00)
P/E	26.7	26.7 (€20.00/€0.75)
Market value of equity	€160 million	€160 million (€20.00 × 8 million)

As can be seen, a two-for-one stock split is basically the same as a 100% stock dividend because all per share data have been reduced by 50%. The only difference is in the accounting treatment: Although both stock dividends and stock splits have no effect on total shareholders' equity, a stock dividend is accounted for as a transfer of retained earnings to contributed capital. A stock split, however, does not affect any of the balances in shareholder equity accounts.

A company may announce a stock split at any time. Typically, a split is announced after a period in which the stock price has risen. Many investors view the announcement of a stock split as a positive sign pointing to future stock price increases. More often, however, announced stock splits merely recognize that the stock has risen enough to justify a stock split to return the stock price to a lower, more marketable price range.

Several of the largest companies in the world (as measured by market value) had stock splits in the last decade. For example, Schneider Electric SA (France) had a two-for-one split in 2011; Whole Foods Market (United States) had a two-for-one split in 2013. In each case, the stock split came after a significant rise in stock price but was not, in and of itself, a meaningful predictor of future price action. However, data show that stock splits have been on the decline in the United States. Although S&P 500 constituent stock splits averaged 45 per year between 1980 and 2017, they reached the maximum of 114 splits in 1986 and have steadily declined since 2015 (e.g., only 5 splits in 2017). This decline in stock splits has been attributed to greater use of funds and exchange-traded funds (ETFs) by individual investors and to changes in market microstructure that have de-linked such transaction costs as commissions paid to number of shares traded. Thus, the concept of a "marketable price range" of a company's stock has become less important.

Much less common than stock splits are reverse stock splits. A **reverse stock split** increases the share price and reduces the number of shares outstanding—again, with no effect on the market value of a company's equity or on shareholders' total cost basis. Just as a high stock price might lead a company to consider a stock split, so too a low stock price may lead a company to consider a reverse stock split. The objective of a reverse stock split is to increase the price of the stock to a higher, more marketable range. As reported in *Barron's*, companies execute reverse splits "to attract institutional investors and mutual funds that often shy from buying stocks trading

below US$5." Reverse stock splits are perhaps most common for companies in, or coming out of, financial distress. Kitov Pharma, an Israeli drug developer, announced a 1-for-20 reverse split in December 2018, reducing its issued shares to 16 million, in order to meet minimum share price listing criteria to begin trading on the Tel Aviv Stock Exchange and to begin the trading of its ADRs on the NASDAQ in January 2019.

Reverse splits, historically less common in Asia, are becoming more popular. For example, reverse stock splits were not permitted in Japan under Corporation Law until 2001, but since 2007, they have been actively encouraged by the Tokyo Stock Exchange to meet the Exchange's objective of standardizing trading lot size to 100 shares for listed companies by 1 October 2018. While most companies were compliant by the deadline, on that date 23 companies reduced their trading lot size to 100 shares by carrying out reverse stock splits. As an example, in May 2018 Fuji Electric Co. Ltd announced that it would conduct a 1-for-5 reverse stock split on 1 October 2018 to adjust the unit of investment in the company to a level deemed desirable by the TSE (between ¥50,000 and ¥500,000).

EXAMPLE 2

Globus Maritime Announces a Reverse Split

In May 2018, Globus Maritime Ltd, a Greek dry bulk shipping company providing worldwide maritime transportation services, was warned by NASDAQ that it no longer met the continuing listing requirements once its share price had traded below the US$1 a share minimum price requirement for 30 consecutive business days. Globus was given until the end of October 2018 to regain compliance. Globus announced a 1 for 10 reverse split to occur on 15 October. On 12 October, shares were trading at US$4.25 before the reverse split had taken place.

1. If the reverse split were to take place when the share price was US$4.25, find the expected stock price after a 1-for-10 reverse split, assuming no other factors affect the split.

Solution:

If the price was US$4.25 before the reverse split, for every 10 shares, a shareholder would have 1 share priced at 10 × US$4.25 = US$42.50.

2. Comment on the following statement: "Shareholder wealth is negatively affected by a reverse stock split."

Solution:

The statement is not generally correct. Considering the reverse split on its own, the market capitalization of the common equity would be unchanged. If the reverse split was interpreted as a good decision (e.g., because the company will be able to retain the advantages of being listed on the NASDAQ), its price and thus market capitalization might increase. But other factors—such as continued limited growth of its operations or continued small share float and turnover—could drive down the stock's value.

DIVIDEND POLICY AND COMPANY VALUE: THEORIES

2

☐ compare theories of dividend policy and explain implications of each for share value given a description of a corporate dividend action

Since the early 1960s, financial theorists have debated the extent to which dividend policy (decisions about whether, when, and in what amount to pay dividends) should and does matter to a company's shareholders. One group of theorists believes that dividend policy is irrelevant to shareholders. This group typically holds that only the decisions of the company that are directly related to investment in working and fixed capital affect shareholders' wealth. A second group holds that dividend policy does matter to investors, for one or more reasons, and that a company can affect shareholders' wealth through its dividend policy. Typically, dividend relevance is attributed to either the belief that investors value a unit of dividends more highly than an equal amount of uncertain capital gains or to one or more market imperfections. Such imperfections include taxes (because dividends may be taxed differently than capital gains), asymmetric information (corporate insiders are better informed about their company's prospects than outside investors), and agency costs (management has a tendency to squander extra cash). We examine these positions and the assumptions that underlie them in the following subsections.

Dividend Policy Does Not Matter

In a 1961 paper, Miller and Modigliani ("MM") argued that in a world without taxes, transaction costs, and equal ("symmetric") information among all investors—that is, under **perfect capital market** assumptions—a company's dividend policy should have no impact on its cost of capital or on shareholder wealth. Their argument begins by assuming a company has a given capital budget (e.g., it accepts all projects with a positive net present value, or NPV) and that its current capital structure and debt ratio are optimal. Another way of stating this argument is that the dividend decision is independent of a company's investment and financing decisions. For example, suppose that an all-equity financed company decided to pay as a dividend the investment amount it required for its capital budget. To finance capital projects, the company could issue additional common shares in the amount of its capital budget (such financing would leave its capital structure unchanged). The value of the newly issued shares would exactly offset the value of the dividend. Thus, if a company paid out a dividend that represented 5% of equity, its share price would be expected to drop by 5%. If a common stock in Australia is priced at A$20 before an A$1 per share dividend, the implied new price would be A$19. The shareholder has assets worth A$20 if the dividend is not paid or assets worth A$20 if the stock drops to A$19 and an A$1 dividend is paid.

Note that under the MM assumptions, there is no meaningful distinction between dividends and share repurchases (repurchases of outstanding common shares by the issuing company): They are both ways for a company to return cash to shareholders. If a company had few investment opportunities such that its current cash flow was more than that needed for positive NPV projects, it could distribute the excess cash flow via a dividend or a share repurchase. Shareholders selling shares would receive A$20 a share, and shareholders not selling would hold shares whose value continued to be A$20. To see this, suppose the company being discussed has 10,000 shares outstanding, a current free cash flow of A$10,000, and a present value of future cash flows of A$190,000. Thus, the share price is (A$10,000 + A$190,000)/10,000 = A$20. Now if the company uses the free cash flow to repurchase shares, in lieu of paying

a dividend of A$1, it will repurchase 500 shares (A$10,000/A$20 = 500). The 9,500 shares left outstanding have a claim on the A$190,000 future cash flow, which results in a share price of A$20 (A$190,000/9,500 = A$20).

An intuitive understanding of MM dividend irrelevance also follows from the concept of a "homemade dividend." In a world with no taxes or transaction costs, if shareholders wanted or needed income, they could construct their own dividend policy by selling sufficient shares to create their desired cash flow stream. Using the example above, assume the company did not pay the A$1 dividend and the stock remained at A$20. A holder of 1,000 shares who desired A$1,000 in cash could sell 50 shares at A$20, thus reducing his or her holdings to 950 shares. Note that by reducing share holdings, second-period dividend income is reduced; higher dividend income in one period is at the expense of exactly offsetting lower dividend income in subsequent periods. The irrelevance argument does not state that dividends per se are irrelevant to share value but that dividend *policy* is irrelevant. By taking the earning power of assets as a given and assuming perfect capital markets, policy alternatives merely involve tradeoffs of different dividend streams of equal present value.

In the real world, market imperfections create some problems for MM's dividend policy irrelevance propositions. First, both companies and individuals incur transaction costs. A company issuing new shares incurs **flotation costs** (i.e., costs in selling shares to the public that include underwriters' fees, legal costs, registration expenses, and possible negative price effects) often estimated to be as much as 4% to 10% of the capital raised, depending on the size of the company and the size of the issue. Shareholders selling shares to create a "homemade" dividend would incur transaction costs and, in some countries, capital gains taxes (of course, cash dividends incur taxes in most countries). Furthermore, selling shares on a periodic basis to create an income stream of dividends can be problematic over time if share prices are volatile. If share prices decline, shareholders have to sell more shares to create the same dividend stream.

Dividend Policy Matters: The Bird in the Hand Argument

Financial theorists have argued that, even under perfect capital markets assumptions, investors prefer a dollar of dividends to a dollar of potential capital gains from reinvesting earnings because they view dividends as less risky. A related viewpoint is that "the typical dollar of reinvestment has less economic value to the shareholder than a dollar paid in dividends" (Graham, Dodd, Cottle, and Tatham 1962). These arguments are similar and have sometimes been called the "bird in the hand" argument, a reference to the proverb "a bird in the hand is worth two in the bush." By assuming that a given amount of dividends is less risky than the same amount of capital gains, the argument is that a company that pays dividends will have a lower cost of equity capital than an otherwise similar company that does not pay dividends; the lower cost of equity should result in a higher share price. MM contend that this argument is incorrect because, under their assumptions, paying or increasing the dividend today does not affect the risk of future cash flows. Such actions only lower the ex-dividend price of the share.

Dividend Policy Matters: The Tax Argument

In some countries, dividend income has traditionally been taxed at higher rates than capital gains. In the United States since 2012, for instance, dividends on shares held at least 60 days, as well as long-term capital gains, have been taxed at a maximum rate of 20%. In mainland China, there is no capital gains tax on shares; however, dividend income is taxed at 20% for shares held less than a month, 10% for shares held between one month and a year, and since 2015 at 0% for shares held longer than a year.

An argument could be made that in a country that taxes dividends at higher rates than capital gains, taxable investors should prefer companies that pay low dividends and reinvest earnings in profitable growth opportunities. Presumably, any growth in earnings in excess of the opportunity cost of funds would translate into a higher share price. If, for any reason, a company lacked growth opportunities sufficient to consume its annual retained earnings, it could distribute such funds through share repurchases (again, the assumption is that capital gains are taxed more lightly than dividends). Taken to its extreme, this argument would advocate a *zero* dividend payout ratio. Real world market considerations may complicate the picture. For example, in some jurisdictions governmental regulation may require companies to distribute excess earnings as dividends or to classify share repurchases as dividends if the repurchases appear to be ongoing in lieu of dividend payments.

OTHER THEORETICAL ISSUES: SIGNALING

3

- ☐ describe types of information (signals) that dividend initiations, increases, decreases, and omissions may convey
- ☐ explain how agency costs may affect a company's payout policy

In the following section, we present additional perspectives related to the theory of dividend policy.

The Information Content of Dividend Actions: Signaling

MM assumed that all investors—including outside investors—have the same information about the company: a situation of symmetric information. In reality, corporate managers typically have access to more detailed and extensive information about the company than do outside investors.

A situation of asymmetric information raises the possibility that dividend increases or decreases may affect share price because they may convey new information about the company. A company's board of directors and management, having more information than outside investors, may use dividends to signal to investors about (i.e., convey information on) the company's prospects. A company's decision to initiate, maintain, increase, or cut a dividend may convey more credible information than positive words from management because cash is involved. For a signal to be effective, it must be difficult or costly to mimic by another entity without the same attributes. Dividend increases are costly to mimic because a company that does not expect its cash flows to increase will not be able to maintain the dividend at increasingly high levels in the long run. (In the short run, a company may be able to borrow to fund dividends.)

Empirical studies broadly support the thesis that dividend initiations or increases convey positive information and are associated with future earnings growth, whereas dividend omissions or reductions convey negative information and are associated with future earnings problems. A dividend declaration can help resolve some of the information asymmetry between insiders and outsiders and help close any gap between the market price of shares and their intrinsic value. Evidence in both developed and emerging market equities suggests the presence of an earnings and return effect following dividend initiation announcements. In general, company earnings increase in the year of dividend initiation and in the following several years, and then

the announcement of the initiation of a regular cash dividend is accompanied by an excess return. By looking at two historical examples of signaling, Example 3 provides further support for the idea that dividend initiations contain value-relevant information.

EXAMPLE 3

Historical Examples: Information on Dividend Initiations

Following are two examples of the information content of dividend initiations following the 2008 global financial crisis.

A. Oracle Corporation, a leading business software maker, initiated a US$0.05 quarterly dividend in May 2009. Oracle's annual US$0.20 dividend amounts to about US$1 billion, a relatively small amount compared with operating cash flow of US$8 billion and another US$9 billion in cash and cash-equivalent assets on its balance sheet at the end of fiscal year 2009. An analyst who follows Oracle for institutional investors saw the Oracle announcement as a signal that the company was well positioned to ride out the downturn and also gain market share.

B. In mid-2009, Paris-based Groupe Eurotunnel announced its first ever dividend after it completed a debt restructuring and received insurance proceeds resulting from a fire that had closed the Channel Tunnel. In a 2 June 2009 press release, Eurotunnel's CEO said that this "marked a turning point for the company as its business has returned to the realm of normality"; the company anticipated a return to profitability.

Some researchers have argued that a company's dividend initiation or increase tends to be associated with share price increases because it attracts more attention to the company. Managers have an incentive to increase the company's dividend if they believe the company to be undervalued because the increased scrutiny will lead to a positive price adjustment. In contrast, according to this line of reasoning, managers of overvalued companies have little reason to mimic such a signal because increased scrutiny would presumably result in a downward price adjustment to their shares.

EXAMPLE 4

Signaling with Dividends and the Costs of Mimicking

Suppose that the management of a company with poor future prospects recommends to the board of directors an increase in its dividend. Management explains to the board that investors may then believe that the company has positive future prospects, leading to an increase in share value and shareholder wealth.

1. State whether such imitation is likely to achieve the stated objective over the long term.

Solution:

No, such dividend increases are not likely to achieve the stated objective over the long term for the company described.

2. Justify your answer to Question 1.

Solution:

Dividend increases are costly to mimic because a company that does not expect its cash flows to increase will not be able to maintain the increased dividend. The company will have to either cut the dividend in the future or go to the market to obtain new equity or debt funding to pay the dividend. Both these alternatives are costly for the company because they result in downward revisions, on average, to the stock price.

Many companies take pride in their record of consistently increasing dividends over a long period of time. Standard & Poor's, for example, identifies companies in its US-based S&P 500 Index, Europe 350 Index, Pan Asia Index, and S&P/TSX Canadian Index that have increased their dividend for a number of consecutive years (at least 25 years in the case of the S&P 500, at least 10 years in the case of the Europe 350, at least 7 years in the case of Pan Asia Index, and at least 5 years in the case of the S&P/TSX). These companies are in various industries. When a company's earnings and cash flow outlook has been and continues to be positive, it often views a policy of increasing dividends as an important tool to convey that information to existing and potential shareholders. Companies that consistently increase their dividends seem to share certain characteristics:

- Dominant or niche positions in their industry
- Global operations
- Relatively less volatile earnings
- Relatively high returns on assets
- Relatively low debt ratios (dividend payouts unlikely to be affected by restrictions in debt covenants)

Dividend cuts or omissions, in contrast, present powerful and often negative signals. For companies under financial or operating stress, the dividend declaration date may be viewed with more than usual interest. Will they cut the dividend? Will they omit the dividend altogether? In these instances, merely maintaining the dividend or not cutting it as much as expected is usually viewed as good news (i.e., that current difficulties are transitory and manageable), unless investors view managers as trying to convey erroneous information to the market.

In principle, although difficult in practice, management can attempt to send a positive signal by cutting the dividend. Telstra, a major Australian telecoms company with an enviable record of paying close to 90% of profits as dividends, announced in 2017 a 30% cut in its dividend—its first cut in more than 20 years. Telstra's management explained it intended to use the funds conserved to reinvest in the business. It was planning for the longer term and retaining financial flexibility as a priority because the company faced significant challenges from rising competition and competing technologies. Although management's message was met with an initial 12% share price decline as disappointed yield-focused investors exited the stock, it was, in retrospect, a positive signal. Telstra was viewed by institutional investors as successfully using its cash flow to reorganize to meet business challenges, and it was regarded as one of the few cases in which a large Australian dividend payer was not cutting payouts as a result of extreme financial pressure.

EXAMPLE 5

Dividend Reductions and Price Increases

In November 2018, BT Group Plc, one of the world's largest providers of communication services and solutions operating in over 170 countries, announced it would cut its interim dividend from 4.85 pence a share to 4.62 pence a share. The company also revealed that net cash flow from operating activities had plunged 71% to £754 million and that revenue had fallen 2% to £11.6 billion, with declines across all divisions.

All this despite the fact that in the first six months of the year, the company reported a pretax profit increase to £1.3 billion from £1.1 billion a year prior and a 2% increase in adjusted earnings (EBITDA) to £3.7 billion from £3.6 billion as the telecoms giant cut costs as part of its restructuring. One analyst commented that while the dividend decrease was an "unwelcome surprise," it was also a "prudent move" given the 71% decline in net cash and thus "should not take too much sheen on a dividend yield, which previously stood at an attractive 6.4%." It was also noted that BT Group was replacing its chief executive in February 2019; thus, future dividends would depend on decisions made by the new leadership. As the market digested this information, the telecoms company's share price rose 6.9% to 257 pence per share.

Source: Renae Dyer, "BT Shares Surge Despite Dividend Cut as It Expects Earnings to Hit Top End of Guidance," Proactive Investors (1 November 2018).

Another example of the signaling content of dividends can be found in the actions of eBay, the e-commerce multinational corporation, and its initial dividend declaration in 2019 (24 years after the online retailer was established in 1995 during the dot-com boom). Technology companies have among the lowest dividend yields and below-average dividend payout ratios. This is because most technology companies have high R&D requirements, and some (e.g., integrated circuit manufacturers) are capital intensive. Those that are profitable often achieve returns on assets and owners' equity that are well above average. In addition, business risk is considerable as discoveries and unforeseen advances change the product landscape. All of these considerations would suggest a policy of low (or no) dividend payments so that internally generated funds are directed toward new product development and capital investment that will maintain high growth and returns. Some companies in the technology sector, however, do mature. Legacy tech companies that initiated dividends as their businesses matured and growth slowed include Apple in 2012, Cisco in 2011, Oracle in 2009, and Microsoft in 2003. At the time of eBay's dividend initiation, such non-dividend-paying tech companies as Alibaba, Weibo, Baidu, and JD.com remained the norm in markets where the technology sector was still growing.

In early 2019, eBay declared its first-ever dividend and announced that it would begin paying quarterly dividends of US$0.14 a share, which represented a yield of 1.6% (for comparison, Microsoft's dividend yield at the time was 1.9% and Cisco's was 2.9%). At the same time, eBay announced an increase in its existing share repurchase program to US$4 billion. Investor reaction was mixed. Some believed that eBay was signaling an interest in broadening its investor focus by attracting a new group of shareholders focused on income over growth while refraining from undertaking unprofitable expansion. Others viewed the dividend declaration as an admission that it was becoming a mature company—that it could no longer deliver high returns from reinvesting its earnings. The future growth prospects for the stock, they would argue, had been diminished. In other words, although the dividend initiation showed confidence in eBay's cash flow generation, investors preferred for management's use

of internal investments to regenerate eBay's core business. Regardless, few could argue that eBay's dividend initiation declaration in 2019 was not a corporate event of some importance.

Agency Costs and Dividends as a Mechanism to Control Them

Large, publicly traded corporations typically have a substantial separation between the professional managers who control the corporation's operations and the outside investors who own it. When agents (the managers) and owners (the shareholders) are two separate parties, managers may have an incentive to maximize their own welfare at the company's expense because they own none or relatively small percentages of the company for which they work and thus do not bear all the costs of such actions. This incentive is ultimately also a problem of unequal (asymmetric) information between managers and outside investors because if outside investors could perfectly observe managers, managers would be dissuaded from such actions. One managerial incentive of particular concern is the potential private benefit managers may obtain from investment in negative net present value (NPV) projects. Such projects will generate negative economic returns; but because they may grow the size of the company (measured in sales or assets) and thus enlarge the manager's span of control, the manager may have the incentive to invest in them. This is a particular problem when management's compensation is tied to assets or sales rather than value enhancement, a flaw in the firm's corporate governance. The potential overinvestment agency problem might be alleviated by the payment of dividends. In particular, by paying out all free cash flow to equity in dividends, managers would be constrained in their ability to overinvest by taking on negative NPV projects. This concern or hypothesis that management may create an overinvestment agency cost is known as Jensen's free cash flow hypothesis.

The potential for managers to squander free cash flow by undertaking unprofitable projects is a consideration to be evaluated on a case-by-case basis. Prior to initiating its dividend in 2003, for example, Microsoft accumulated increasingly large cash positions but was not observed to squander monies on unprofitable projects. In some cases, such cash positions may provide financial flexibility to respond quickly to changes in the environment, to grasp unforeseen opportunities, or to survive periods of restricted credit, as in the case of Ford Motor Company's accumulation of cash during profitable years in the 1990s and similarly by Japanese automotive parts manufacturer Denso Corporation in the late 2000s and 2010s. Clearly, there are industry-specific and life-cycle conditions to consider. In general, it makes sense for growing companies in industries characterized by rapid change to hold cash and pay low or no dividends, but it does not make sense for large, mature companies in relatively non-cyclical industries. In general, there is empirical support for the market reaction to dividend change announcements to be stronger for companies with greater potential for overinvestment than for companies with lesser potential for overinvestment.

Another concern when a company is financed by debt as well as equity is that paying dividends can exacerbate the agency conflict between shareholders and bondholders. When a company has debt outstanding, the payment of dividends reduces the cash cushion available to the company for the disbursement of fixed required payments to bondholders. The payment of large dividends, with the intention of transferring wealth from bondholders to shareholders, could lead to underinvestment in profitable projects. All else equal, both dividends and share repurchases increase the default risk of debt. Reflecting bondholders' concern, the bond **indenture** (contract) often includes a covenant restricting distributions to shareholders that might impair the position of bondholders. A typical form of this restriction is to define the maximum allowable amount of distributions to shareholders during the life of the bond. This amount of funds is usually a positive function of the company's current and past earnings and issues of new equity and a negative function of dividends paid since the

bonds were issued. Such covenants often do not really restrict the level of dividends as long as those dividends come from new earnings or from new issues of stock. What the covenant attempts to do is prevent the payment of dividends financed by the sale of the company's existing assets or by the issuance of new debt. Covenants that specify minimum levels of EBITDA and/or EBIT coverage of interest charges are frequently used as well. These covenants provide some assurance that operating earnings include a cushion for the payment of fixed charges. Other covenants focus on balance sheet strength—for example, by specifying a maximum value for the ratio of debt to tangible net worth.

EXAMPLE 6

Agency Issues and Dividends

1. Two dividend-paying companies A and B directly compete with each other. Both companies are all-equity financed and have recent dividend payout ratios averaging 35%. The corporate governance practices at Company B are weaker than at Company A. For example, at B but not A, the chief executive officer is also chair of the board of directors. Recently, profitable investment opportunities for B have become fewer, although operating cash flow for both A and B is strong.

   Based only on the information given, investors who own shares in both A and B are *most likely* to press for a dividend increase at:

   A. Company A, because it has better growth prospects than Company B.

   B. Company B, because a dividend increase may mitigate potential over-investment agency problems.

   C. Company B, because a dividend increase may mitigate potential underinvestment agency problems.

Solution:

B is correct. Company B's strong operating cash flow in an environment of fewer profitable growth opportunities may tempt Company B's management to overinvest. The concern is increased because of Company B's relatively weak corporate governance.

The final example in this section illustrates the complex agency considerations that may affect dividend policy.

EXAMPLE 7

Electric Utilities, Agency Costs, and Dividends

Electric utilities often have above average dividend yields. A distinctive characteristic of many utility companies is that they pay a high percentage of earnings as dividends, while periodically issuing new equity to invest in the many projects necessitated by the capital-intensive nature of their business. This practice of financing dividends with new equity appears unwise because new equity is expensive. Researchers examining a set of US-based electric utilities, however, have demonstrated that there may be a good reason for paying dividends and then issuing equity: the mitigation of the agency problems between managers and shareholders and between utility regulators and utility shareholders.

Because electric utilities are typically monopolies in the sense that they are usually the only providers of electricity in a given area, they are regulated so they are not able to set electricity rates at monopolistically high levels. The regulators are expected to set rates such that the company's operating expenses are met and investors are provided with a fair return. The regulators, however, are usually elected, or are political appointees, and view ratepayers as potential voters. Thus, utility shareholders, in addition to facing potential manager–shareholder agency issues because managers have incentives to consume perquisites or to overinvest, also face a regulator–shareholder conflict in which regulators set rates low to attract the votes of individuals being served by the utility.

In the utility industry, therefore, dividends and the subsequent equity issue are used as mechanisms to monitor managers and regulators. The company pays high dividends and then goes to the capital markets to issue new equity. If the market does not think that shareholders are getting a fair return because regulators are setting rates too low, or because managers are consuming too many perks, the price at which new equity can be sold will fall until the shareholder expectations for returns are met. As a result, the company may not be able to raise sufficient funds to expand its plant to meet increasing electricity demand—the electric utility industry is very capital intensive—and, in the extreme, customer needs may not be met. Faced with this possibility, and potentially angry voters, regulators have incentives to set rates at a fair level. Thus, the equity market serves to monitor and arbitrate conflicts between shareholders and both managers and regulators.

OTHER THEORETICAL ISSUES: SUMMARY

4

☐ explain how agency costs may affect a company's payout policy

What can we conclude about the link between dividends and valuation? In theory, in the absence of market imperfections Miller and Modigliani (1961) find that dividend policy is irrelevant to the wealth of a company's investors. But in reality, the existence of market imperfections makes matters more complicated. In addition, some investors are led, by logic or custom, to prefer dividends.

Unfortunately, in the search for the link between dividend policy and value, the evidence is inconclusive. It is difficult to show an exact relationship between dividends and value because so many variables affect value. We have presented factors that would seem to explain why some companies put emphasis on dividends and others do not. Financial theory predicts that reinvestment opportunities should be the dominant factor. Indeed, no matter where they are located in the world, small, fast-growing companies pay out little or none of their earnings. Regardless of jurisdiction, more mature companies with fewer reinvestment opportunities tend to pay dividends. For these mature companies, taxes, regulations/laws, tradition, signaling, ownership structure, and attempts to reconcile agency conflicts all seem to play a role in determining the dividend payout ratio. At a minimum, in looking at a company an analyst should evaluate whether a given company's dividend policy matches its reinvestment opportunities and legal/financial environment.

5 FACTORS AFFECTING DIVIDEND POLICY IN PRACTICE

- ☐ explain factors that affect dividend policy in practice
- ☐ calculate and interpret the effective tax rate on a given currency unit of corporate earnings under double taxation, dividend imputation, and split-rate tax systems

In Section 3 we discussed theories of dividend policy and value and concluded that the issue is, at best, unresolved. In this section we explore six factors that affect a company's dividend policy, which we defined earlier as decisions about whether, when, and in what amount to pay dividends:

- Investment opportunities
- The expected volatility of future earnings
- Financial flexibility
- Tax considerations
- Flotation costs
- Contractual and legal restrictions

Boards of directors and managers spend considerable time setting dividend policy despite the lack of clear guidance from theory to inform their deliberations. The factors listed are, however, often mentioned by managers themselves as relevant to dividend policy selection in practice. Some of the factors we explore, such as taxation, are not company-specific, whereas other factors, such as possible contractual restrictions on dividend payments and the expected volatility of future earnings, are more company-specific. The factors may be interrelated, and the presence of one may enhance or diminish the effect of another. Importantly, the independence between the investment, financing, and dividend decisions assumed by MM may no longer hold when such market imperfections as information effects, agency problems, and taxes are recognized.

Investment Opportunities

All else equal, a company with many profitable investment opportunities will tend to pay out less in dividends than a company with fewer opportunities because the former company will have more uses for internally generated cash flows. Internally generated cash flow is generally a cheaper source of equity funding than new equity issuance. Opportunities for new investments, and the speed with which a company needs to respond to them, are influenced by the industry in which the company operates. A company with the ability to delay the initiation of projects without penalty may be willing to pay out more in dividends than a company that needs to act immediately to exploit profitable investment opportunities. Technology companies tend to have much lower average dividend yields than utilities. The chief explanation may be the size and time horizon of profitable investment opportunities in relation to annual operating cash flow generated. For technology companies, the pace of change is rapid, so having internally generated funds available to react to profitable opportunities affords them valuable flexibility. For utility companies, for which there are typically fewer such opportunities and for which change is much slower, higher dividend payouts are indicated.

The Expected Volatility of Future Earnings

Several important factors in the dividend payout decision have been identified as important to managers. Most managers

- had a target payout ratio based on long-run sustainable earnings;
- focused more on dividend changes (increases or decreases) than on dividend levels; and
- were reluctant to increase the dividend if the increase might soon need to be reversed.

Findings in the United States, United Kingdom, and other countries suggest that managers are reluctant to cut dividends—preferring to smooth them over time. Smoothing takes the form of relating dividend increases to the long-term earnings growth rate, even if short-term earnings are volatile. All else equal, the more volatile earnings are, the greater the risk that a given dividend increase may not be covered by earnings in a future time period. Thus, when earnings are volatile, we expect companies to be more cautious in the size and frequency of dividend increases. These findings also hold for other countries, although variation between countries has been noted in managers' willingness to decrease dividends based on available investment opportunities.

Financial Flexibility

Companies may not initiate, or may reduce or omit, dividends to obtain the financial flexibility associated with having substantial cash on hand. A company with substantial cash holdings is in a relatively strong position to meet unforeseen operating needs and to exploit investment opportunities with minimum delay. Having a strong cash position can be particularly valuable during economic contractions when the availability of credit may be reduced. Financial flexibility may be viewed as a tactical consideration that is of greater importance when access to liquidity is critical and when the company's dividend payout is relatively large.

A classic example of explaining a dividend decision in terms of the need to preserve financial flexibility occurred with Skanska AB, based in Sweden. On 8 February 2019, Skanska AB, one of the world's biggest construction and development companies, announced its board's suggestion to cut Skanska's dividend going forward by 30% to SKr6.00. This would allow for continued expansion of its project development business while maintaining its financial ability to deliver sustainable shareholder returns. Skanska's Chief Executive Anders Danielsson stated:

> "As we enter 2019, there are political and macroeconomic uncertainties which are likely to increase further. In many of our home geographies and sectors, the markets are levelling out and it is difficult to predict how long this relatively favourable environment will last."
>
> *Source*: "Skanska Warns of 'Increasing Uncertainties' and Proposes Dividend Cut," *Financial Times* (8 February 2019): https://www.ft.com/content/9201486e-2b81-11e9-a5ab-ff8ef2b976c7.

The cut was expected to conserve SKr920 million on an annual basis. With approximately SKr19 billion of cash on hand at the time of the statement and with operating cash flows at least covering the previous dividend, the dividend reduction appeared to be accurately characterized as "precautionary." Although the dividend cut announcement was accompanied by a 9% decline in Skanska's share price, the share price quickly recovered. Within two months, it had risen 7% above its pre-dividend

cut announcement value, indicating the market's favorable response to Skanska's decision to cut the dividend arising from uncertainty in its operating environment and the desire to maintain financial flexibility.

When increasing financial flexibility is an important consideration, a company may decide to distribute money to shareholders primarily by means of share repurchases (covered in Section 6) rather than regular dividends. A program to repurchase shares in the open market does not involve a formal requirement that any repurchases be executed, and share repurchases in general do not establish the same expectations for continuation in the future as regular dividends.

Tax Considerations

Taxation is an important factor that affects investment decisions for taxable investors. Different jurisdictions tax corporate dividends in a wide variety of ways. Some tax both capital gains and dividend income. Others tax dividends but not capital gains. Even within a given country, taxation can be quite complex. In addition, because taxation is a major fiscal policy tool that is subject to politics, governments have a tendency to "re-address" tax issues, sometimes with great frequency. As with other aspects of taxation, governments use the taxation of dividends to address a variety of goals: to encourage or discourage the retention or distribution of corporate earnings; to redistribute income; or to address other political, social, and/or investment goals.

For the global investor, foreign taxes can be as important as domestic taxes. Foreign tax credits in the investor's home country also may figure importantly into the overall taxation issue. For example, France requires companies domiciled in France to withhold dividends paid to foreign investors at the corporate tax rate (reduced to 25% by 2022), but investors in other countries can usually claim a tax credit on their home country tax return for the amount of that tax, especially where a double tax agreement exists.

Taxation Methods

We look at three main systems of taxation that determine dividends: double taxation, imputation, and split-rate. Other tax systems can be a combination of these.

In a **double taxation system**, corporate pretax earnings are taxed at the corporate level and then taxed again at the shareholder level if they are distributed to taxable shareholders as dividends. Exhibit 4 illustrates double taxation, where the individual tax rate on dividends is an assumed maximum of 15%.

Exhibit 4: Double Taxation of Dividends at 15% Personal Tax Rate (per US$100)

Net income before taxes	US$100
Corporate tax rate	35%
Net income after tax	US$65
Dividend assuming 100% payout	US$65
Shareholder tax on dividend	US$9.75
Net dividend to shareholder	US$55.25
Double tax rate on dividend distributions*	44.8%

** (35 + 9.75)/100 = 0.4475 or 44.8%.*

Investors will clearly prefer a lower tax rate on dividends, but it is not clear whether they prefer a higher or lower payout. Payout preferences will depend on whether there is a tax on long-term capital gains for shareholders in their country and whether the tax rate on capital gains is higher or lower than the tax rate on dividends. Later, we will discuss a company's decision with respect to the dividend payout ratio.

A second major taxation system is the **dividend imputation tax system**, which effectively ensures that corporate profits distributed as dividends are taxed just once, at the shareholder's tax rate. Australia and New Zealand use a dividend imputation tax system. Under this system, a corporation's earnings are first taxed at the corporate level. When those earnings are distributed to shareholders in the form of dividends, however, shareholders receive a tax credit, known as a **franking credit**, for the taxes that the corporation paid on those distributed earnings (i.e., corporate taxes paid are imputed to the individual shareholder). If the shareholder's marginal tax rate is higher than the company's, the shareholder pays the difference between the two rates. Exhibit 5 shows one variation of a tax imputation system in which a shareholder with a lower marginal tax bracket than the company's actually receives a tax credit for the difference between the corporate rate and his own rate. Notice how this system effectively applies the shareholder tax rate to corporate pretax income by using tax credits or additional taxes to account for any differences between the corporate and shareholder tax rates.

Exhibit 5: Taxation of Dividends Based on Tax Imputation System (A$)

	Marginal Shareholder Tax Rate	
	15%	**47%**
Pretax income	A$100	A$100
Taxes at 30% corporate tax rate	30	30
Net income after tax	70	70
Dividend assuming 100% payout	70	70
Shareholder tax on pretax income	15	47
Less tax credit for corporate payment	30	30
Tax due from shareholder	(15)	17
Effective tax rate on dividend	15/100	47/100
	= 15%	= 47%

A **split-rate tax system** is a third taxation system of greater historical than current importance. Under this system, corporate earnings that are distributed as dividends are taxed at a lower rate at the corporate level than earnings that are retained. At the level of the individual investor, dividends are taxed as ordinary income. Earnings distributed as dividends are still taxed twice, but the relatively low corporate tax rate on earnings mitigates that penalty. Exhibit 6 depicts this split-rate tax system for dividends.

Exhibit 6: Taxation of Dividends Based on Split-Rate System (per €100)

Pretax earnings	€200
Pretax earnings retained	100
35% tax on retained earnings	35
Pretax earnings allocated to dividends	100

20% tax on earnings allocated to dividends	20
Dividends distributed	80
Shareholder tax rate	35%
After tax dividend to shareholder	[(1 − 0.35) × 80] = 52
Effective tax rate on dividend	[20% + (80 × 0.35)%] = 48%

Shareholder Preference for Current Income versus Capital Gains

All other things being equal, one could expect that the lower an investor's tax rate on dividends relative to his or her tax rate on capital gains, the stronger the investor's preference for dividends. But other issues also impinge on this preference. The investor may buy high-payout shares for a tax-exempt retirement account. Even if dividends are taxed at a lower rate than capital gains, it is not clear that shareholders will necessarily prefer higher dividends. After all, capital gains taxes do not have to be paid until the shares are sold, whereas taxes on dividends must be paid in the year received even if reinvested. In addition, in some countries, such as the United States and Australia, shares held at the time of death benefit from a step-up valuation or tax exemption as of the death date. Finally, tax-exempt institutions, such as pension funds and endowment funds, are major shareholders in most industrial countries. Such institutions are typically exempt from both taxes on dividends and taxes on capital gains. Hence, all other things being equal, they are indifferent as to whether their return comes in the form of current dividends or capital gains.

Flotation Costs

Another factor that affects a company's dividend policy is flotation cost. Flotation costs include 1) the fees that the company pays (to investment bankers, attorneys, securities regulators, auditors, and others) to issue shares and 2) the possible adverse market price impact from a rise in the supply of shares outstanding. Aggregate flotation costs are proportionally higher (in terms of percentage of gross proceeds) for smaller companies (which issue fewer shares) than for larger companies. Flotation costs make it more expensive for companies to raise new equity capital than to use their own internally generated funds. As a result, many companies try to avoid establishing a level of dividends that would create the need to raise new equity to finance positive NPV projects.

EXAMPLE 8

A Company That Needs to Reinvest All Internally Generated Funds

1. Boar's Head Spirits Ltd., based in the United Kingdom, currently does not pay a dividend on its common shares. Boar's Head has an estimated operating cash flow of £500 million. The company's financial analyst has calculated its cost of capital as 12%. The same analyst has evaluated modernization and expansion projects with a positive NPV that would require £800 million. The cost of positive NPV projects exceeds estimated operating cash flow by £300 million (£800 million – £500 million). Having an above average debt ratio for its industry, Boar's Head is reluctant to increase its long-term debt

in the next year. Discuss whether you would expect Boar's Head to initiate a dividend based on the above facts.

Solution:

One would expect Boar's Head would not initiate a dividend. As things stand, internally generated funds, as represented by operating cash flow, are not sufficient to fund positive NPV projects. So, payment of a dividend would be at the expense of rejecting positive NPV projects unless the balance of such projects and the dividend were both financed by debt. Given its concern about debt levels, the company would not be expected to pay a dividend that needs to be financed by debt. Because the company has unfunded positive NPV projects, it could consider issuing new shares to fund those projects. The company, however, would not be expected to issue shares solely for the purpose of paying dividends.

Contractual and Legal Restrictions

The payment of dividends is often affected by legal or contractual restrictions or rules. In some countries, such as Brazil, the distribution of dividends is legally mandated (with certain exceptions). In other countries (e.g., Canada and the United States) the payment of a dividend not specifically indicated to be a liquidating dividend may be restricted by an **impairment of capital rule**. Such a rule requires that the net value of the remaining assets as shown on the balance sheet be at least equal to some specified amount (related to the company's capital).

Contractual restrictions on the amount of dividends that can be paid are often imposed by bondholders in bond indentures. These restrictions require that the company maintain certain ratios (interest coverage ratios, current ratio, etc.) or fulfill certain conditions before dividend payments can be made. Debt covenants in a bond indenture are a response to the agency problems that exist between shareholders and bondholders and are put in place to limit the ability of the shareholders to expropriate wealth from bondholders. As an extreme example, in the absence of covenants or legal restrictions management could liquidate the company's assets and pay the proceeds to the shareholders as a liquidating dividend, leaving the bondholders with nothing to settle their claims.

If a company has issued preference shares, dividends on common shares may not be paid until preference share dividends are paid. In addition, if the preference dividends are cumulative, then preference dividends that are in arrears must be paid before any common dividend can be paid.

Factors Affecting Dividend Policy: Summary

Several factors of varying degrees of importance can affect a company's dividend policy. In the following example, we explore how these factors affect the dividend policy of a hypothetical company named Makinasi Appliances Company.

EXAMPLE 9

Makinasi Appliances Company Cuts Its Dividend

1. In September 2018, Makinasi Appliances Company, a hypothetical global home appliances manufacturer, announced it would cut its dividend for the first time in its history. The company, which pays quarterly dividends, said

the dividend would be reduced to US$0.70 a share from the US$1.60 paid a year earlier. The 2017 total dividend was US$6.50 a share. The dividend cut ends a 400% cumulative increase in the dividend over 10 years. Faced with plunging global demand for appliances (Makinasi's sales were forecasted to fall 19%) and ongoing competition in the white goods industry, Makinasi was expecting a loss as high as US$32.5 million (operating loss of US$46 million) for fiscal year ending March 2019, compared with the analyst forecasted loss of US$18.3 million for the same period. The company already had a loss of US$28.6 million in fiscal year 2018 (the operating loss was US$30.4 million). Makinasi's plans are to aggressively cut costs: It plans to cut production-related costs by US$18 million and fixed costs by US$21 million. The company has said that the lower dividend is because of the difficulty in maintaining the dividend at its previous level. Board member bonuses have been eliminated, and manager bonuses have been reduced by 40%. Capital spending will be cut by 30% to US$27 million, and R&D spending will be cut by 13.5% to US$24million.

The company announced plans to raise capital via a bond issue for up to US$50 million. The national credit rating agency has cut Makinasi's bond rating from A to A–.

Discuss Makinasi's decision to cut its dividend in light of the factors affecting dividend policy covered in this section.

Solution:

Of the six factors discussed in this section, the *volatility of future earnings* and preservation of *financial flexibility* are the major factors influencing Makinasi's decision to cut its dividend. Paying the full dividend would have lowered Makinasi's liquidity ratios and forced it to raise even more external capital. In addition, paying the full dividend probably would likely have resulted in a more severe downgrade in its bond rating and an increase in the cost of debt financing. Paying the full dividend when faced with huge, larger than expected operating losses also might have sent a signal to investors that Makinasi was not serious about cutting costs and curtailing losses. *Flotation costs* could also play a role in Makinasi's case. Flotation costs on new equity are typically higher than those on new debt; it is possible that if it paid a dividend of more than US$0.70 a share, it would have to issue new equity in addition to the US$50 million in debt.

6 PAYOUT POLICIES

- ☐ compare stable dividend with constant dividend payout ratio, and calculate the dividend under each policy
- ☐ describe broad trends in corporate payout policies

In the following sections we discuss two types of dividend policies: stable dividend and constant dividend payout ratio policies. A **stable dividend policy** is one in which regular dividends are paid that generally do not reflect short-term volatility in earnings.

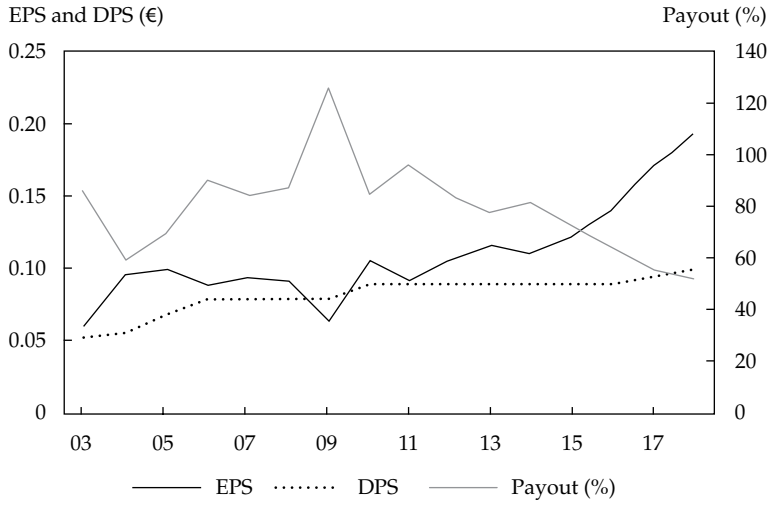
This type of dividend policy is the most common because managers are very reluctant to cut dividends, as discussed earlier. A **constant dividend payout ratio policy** is the policy of paying out a constant percentage of net income in dividends. In Section 6, we discuss share repurchases as an alternative to the payment of cash dividends.

Stable Dividend Policy

This dividend policy is the most common. Companies that use a stable dividend policy base dividends on a long-term forecast of sustainable earnings and increase dividends when earnings have increased to a sustainably higher level. Thus, if the long-term forecast for sustainable earnings is slow growth, the dividends would be expected to grow slowly over time, more or less independent of cyclical upward or downward spikes in earnings. If sustainable earnings were not expected to grow over time, however, the corresponding dividends would be level (i.e., not growing). Compared with the constant payout ratio policy, a stable dividend policy typically involves less uncertainty for shareholders about the level of future dividends. This is so because the constant payout ratio policy reflects to a higher degree short-term volatility in earnings and/or in investment opportunities.

Many companies pride themselves on a long record of gradually and consistently increasing dividends. Exhibit 7 shows the record of Gruppo Hera (Hera), an Italian multi-utility company that operates in waste management, water, gas, electricity and central heating distribution, and energy trading and electricity generation. Between 2003 and 2018, dividends per share (DPS) show an upward trajectory. Earning declines during this period were accompanied by stable or increasing dividends, underscoring the company's longer-term stated policy of a stable and growing dividend, irrespective of yearly earnings. Consequently, Hera's payout ratio varies widely, between 52% to 125%, over the period shown. For the long term, Hera's management appeared notably optimistic about earnings prospects. In 2019, they committed to a continuing increase in annual dividends per share from €0.10 up to €0.11 by 2022.

Exhibit 7: Gruppo Hera Earnings and Dividends



Source: https://eng.gruppohera.it/group/investor_relations/investor_proposition/hera_share/dividends/

As the example shows, dividends over the period were either stable or rising—even while earnings experienced considerable variability.

A stable dividend policy can be modeled as a process of gradual adjustment toward a target payout ratio based on long-term sustainable earnings. A **target payout ratio** is a goal that represents the proportion of earnings that the company intends to distribute (pay out) to shareholders as dividends over the long term.

A model of gradual adjustment (which may be called a "target payout adjustment model") was developed by John Lintner (1956). The model reflects three basic conclusions from his study of dividend policy: 1) Companies have a target payout ratio based on long-term, sustainable earnings; 2) managers are more concerned with dividend changes than with the level of the dividend; and 3) companies will cut or eliminate a dividend only in extreme circumstances or as a last resort.

A simplified version of Lintner's model can be used to show how a company can adjust its dividend. For example, suppose that the payout ratio is below the target payout ratio and earnings are expected to increase. The expected increase in the dividend can be estimated as a function of four variables: expected earnings next year, the target payout ratio, the previous dividend, and the adjustment factor (one divided by the number of years over which the adjustment in dividends should take place). Suppose that the current dividend is US$0.40, the target payout ratio is 50%, the adjustment factor is 0.2 (i.e., the adjustment is to occur over five years), and expected earnings are US$1.50 for the year ahead (an increase from the US$1 value of last year). The expected increase in dividends is US$0.07, as shown here:

Expected increase in dividends

= (Expected earnings × Target payout ratio − Previous dividend) × Adjustment factor

= (US$1.50 × 0.5 − US$0.40) × 0.2

= US$0.07

Therefore, even though earnings increased 50% from US$1.00 to US$1.50, the dividend would only incrementally increase by about 17.5% from US$0.40 to US$0.47.

By using this model, note that if in the following year earnings temporarily fell from US$1.50 to US$1.34, the dividend might well be increased by up to US$0.04 [(US$1.34 × 0.5 – US$0.47) × 0.2 = US$0.04] a share, because the implied new dividend of US$0.51 would still be moving the company toward its target payout ratio of 50%. Even if earnings were to fall further or even experience a loss, the company would be reluctant to cut or eliminate the dividend (unless its estimate of sustainable earnings or target payout ratio were lowered); instead, it would rather opt to maintain the current dividend until future earnings increases justified an increase in the dividend.

EXAMPLE 10

Determining Dividends by Using a Target Payout Adjustment Model

1. Last year Luna Inc. had earnings of US$2.00 a share and paid a regular dividend of US$0.40. For the current year, the company anticipates earnings of US$2.80. It has a 30% target payout ratio and uses a 4-year period to adjust the dividend. Compute the expected dividend for the current year.

Solution:

Expected dividend

= Previous dividend + [(Expected earnings × Target payout ratio − Previous dividend) × Adjustment factor)]

= US$0.40 + [(US$2.80 × 0.3 − US$0.40) × (1/4)]

= US$0.40 + [(US$0.84 − US$0.40) × (1/4)]

= US$0.51 dividend, an US$0.11 increase

Thus, although earnings are expected to increase by 40%, the increase in the dividend would be 27.5%. Despite the adjustment process, the payout ratio would fall from 20% (US$0.40/US$2.00) to 18.2% (US$0.51/US$2.80). The firm would move toward its target payout ratio if earnings growth were slower and the adjustment time period were shorter (i.e., the adjustment factor higher).

Constant Dividend Payout Ratio Policy

In this type of policy, a dividend payout ratio decided on by the company is applied to current earnings to calculate the dividend. With this type of dividend policy, dividends fluctuate with earnings in the short term. Constant dividend payout ratio policies are infrequently adopted in practice. Example 11 illustrates this type of policy with Pampas Fertilizer, a hypothetical company.

EXAMPLE 11

Pampas Fertilizer Changes from a Stable to a Constant Dividend Payout Ratio Policy

Pampas Fertilizer, a hypothetical company, is the leading fertilizer producer in Argentina. Its earnings tend to be highly volatile. Demand for fertilizer is seasonal, typically being higher in summer than in winter. On the supply side, costs are primarily driven by ammonia prices that are subject to business cycle influences and are thus very volatile. In consideration of earnings volatility, Pampas might have difficulty sustaining a steadily rising dividend level. In view of such considerations, Pampas changed its dividend policy from a stable dividend policy to a constant dividend payout ratio policy (called a "variable dividend policy" by management) in its fiscal year 2018. The following is the explanation by the company:

Pampas has paid cash dividends on our common stock since 2003. ARS1.50 per quarter was paid each fiscal quarter, as shown in the following table, through the second quarter of fiscal year 2018.

Effective 30 November 2017, the company's board of directors approved the use of a variable dividend policy to replace the company's fixed dividend policy. Beginning with the third quarter of fiscal year 2018, Pampas began to pay a dividend to shareholders of its common stock on a quarterly basis for each quarter for which the company reports net income in an amount equal to 25% of such quarterly income.

The board of Pampas implemented the variable dividend policy to more accurately reflect the results of the company's operations while recognizing and allowing for the cyclicality of the fertilizer industry.

Exhibit 8 shows quarterly data for fiscal years 2019 and 2018 in Argentine pesos (ARS).

Exhibit 8: Earnings per Share (EPS) and Dividends per Share (DPS) for Pampas Fertilizer (Fiscal Years Ending 31 March)

Fiscal Period	EPS(ARS)	DPS(ARS)
2019:Q4	9.32	2.350
2019:Q3	4.60	1.152
2019:Q2	15.41	3.852
2019:Q1	10.53	2.636
2018:Q4	7.84	1.961
2018:Q3	18.65	4.660
2018:Q2	26.30	1.500
2018:Q1	21.22	1.500

1. From the table, identify the fiscal quarter when Pampas first applied a constant dividend payout ratio policy.

Solution:

Pampas first used that policy in the third quarter of fiscal year 2018. Until then, a quarterly dividend of ARS1.500 was paid irrespective of quarterly earnings. The payout ratios in all subsequent quarters round to approximately 25%.

2. Demonstrate that the dividend for 2019:Q4 reflects the stated current dividend policy.

Solution:

(EPS ARS9.32)/4 = ARS2.330, which differs only slightly from the reported dividend of ARS2.350 (EPS are rounded to two decimal places, so rounding error is expected).

Global Trends in Payout Policy

An interesting question is whether corporations are changing their dividend policies in response to changes in the economic environment and in investor preferences. Dividend policy practices have international differences and change through time, even within one market, consistent with the idea that companies adapt their dividend policy over time to changing investor tastes. Typically, fewer companies in a given US stock market index have paid dividends than have companies in a comparable European stock market index. In some Asian markets, companies have significantly increased their dividend payouts, albeit from a lower base, as these companies and markets mature. In addition, the following broad trends in dividend policy have been observed:

- The fraction of companies paying cash dividends has been in long-term decline in most developed markets (e.g., the United States, Canada, the European Union overall, the United Kingdom, and Japan). In Asia-Pacific, however, the value paid out in annual dividends tripled from 2009 to 2019. In the rest of the world, the value of annual dividend payouts only doubled over the same period.

- Since the early 1980s in the United States and the early 1990s in the United Kingdom and continental Europe, the fraction of companies engaging in share repurchases has trended upward. Since the late 2010s, share repurchases by major companies in Asia, particularly in mainland China and Japan, have been substantial (following a history of little to no prior share repurchase activity).

Research on dividend behavior globally shows that aggregate dividend amounts as well as payout ratios have generally increased over time, although the fraction of dividend payers has decreased. For example, studies using data from around the world substantiate the proportion of cash dividend paying firms declining over the long term, with aggregate dividend payments concentrated in a relatively small number of firms. Post-global financial crisis, there has been some reversal in the long-term downward trend in the fraction of dividend payers and payout ratios. The dividend payers are, on average, larger, more profitable, have fewer growth opportunities, and spend less on R&D compared to the non-dividend payers.

Moreover, researchers have documented internationally a negative relationship between dividend initiations/increases and enhanced corporate governance and transparency (such as mandatory adoption of IFRS rules and enforcement of new insider trading laws). This is consistent with the notion of the decreasing information content of dividends and their reduced signaling role as governance and transparency of markets improves. Similarly, findings show less generous dividend payout policies in countries requiring detailed corporate disclosures and having strong investor protection. The reduction in both information asymmetry and agency issues resulting from improved corporate governance, along with the flexibility offered by share repurchases, appear to explain the long-term decline in dividend payers.

SHARE REPURCHASES

7

- ☐ compare share repurchase methods
- ☐ calculate and compare the effect of a share repurchase on earnings per share when 1) the repurchase is financed with the company's surplus cash and 2) the company uses debt to finance the repurchase
- ☐ calculate the effect of a share repurchase on book value per share

A **share repurchase** (or **buyback**) is a transaction in which a company buys back its own shares. Unlike stock dividends and stock splits, share repurchases use corporate cash. Hence, share repurchases can be viewed as an alternative to cash dividends. Shares that have been issued and subsequently repurchased are classified as **treasury shares/stock** if they may be reissued or **canceled shares** if they will be retired; in either case, they are not then considered for dividends, voting, or computing earnings per share.

In contrast to the case of cash dividends, usage or growth in usage of share repurchases has historically required enabling regulation. In the United Kingdom, share repurchases became legal in 1981. They were never explicitly illegal in the United States, but usage became substantial only subsequent to US Securities and Exchange Commission rule 10b–18 in 1982. (That rule protected repurchasing companies from charges of share manipulation if repurchases were conducted consistent with the terms of the rule.) Other markets in continental Europe and Asia have also followed with enabling regulation (e.g., 1995 for Japan, 1998 for Germany and Singapore, 1999 for India and Norway, 2000 for Denmark and Sweden). Share repurchases in many

markets remain subject to more restrictions than in the United States. Restrictions include requiring shareholder approval of share repurchase programs, limiting the percent of share repurchases to a certain fraction (often 10%) of outstanding shares, allowable repurchase mechanisms, and other restrictions to protect creditors. In many markets, use of share repurchases is becoming increasingly common.

In general, when an amount of share repurchases is authorized, the company is not strictly committed to following through with repurchasing shares. This situation contrasts with the declaration of dividends, where that action does commit the company to pay the dividends. Another contrast with cash dividends is that whereas cash dividends are distributed to shareholders proportionally to their ownership percentage, share repurchases in general do not distribute cash in such a proportionate manner. For example, if repurchases are executed by a company via buy orders in the open market, cash is effectively being received by only those shareholders with concurrent sell orders.

The next section presents the means by which a company may execute a share repurchase program.

Share Repurchase Methods

Following are the four main ways that companies repurchase shares, listed in order of importance.

1. **Buy in the open market.** This method of share repurchase is the most common, with the company buying its own shares as conditions warrant in the open market. The open market share repurchase method gives the company maximum flexibility. Open market repurchases are the most flexible option for a company because there is no legal obligation to undertake or complete the repurchase program; a company may not follow through with an announced program for various reasons, such as unexpected cash needs for liquidity, acquisitions, or capital expenditures. In the United States, open market transactions do not require shareholder approval, whereas in Europe, shareholder approval is required for buybacks. After studying buybacks in 32 countries, findings by Manconi, Peyer, and Vermaelen (2015) suggest that all companies have shareholder authorization in place to allow management the opportunity to buy back undervalued shares in the future. They conclude that the need for shareholder approval does not compensate for poor corporate governance and instead limits management's flexibility to time buybacks to create long-term shareholder value. Authorizations to repurchase stock can last for years. In many shareholders' minds, the announcement of a repurchase policy provides support for the share price. If the share repurchases are competently timed to minimize price impact and to exploit perceived undervaluation in the marketplace, this method is also relatively cost effective.
2. **Buy back a fixed number of shares at a fixed price.** Sometimes a company will make a **fixed price tender offer** to repurchase a specific number of shares at a fixed price that is typically at a premium to the current market price. For example, in Australia, if a stock is selling at A$37 a share, a company might offer to buy back 5 million shares from current shareholders at A$40. If shareholders are willing to sell more than 5 million shares, the company will typically buy back a pro rata amount from each shareholder. By setting a fixed date, such as 30 days in the future, a fixed price tender offer can be accomplished quickly.

3. **Dutch auction.** A Dutch auction is also a tender offer to existing shareholders, but instead of specifying a fixed price for a specific number of shares, the company stipulates a range of acceptable prices. A Dutch auction uncovers the minimum price at which the company can buy back the desired number of shares with the company paying that price to all qualifying bids. For example, if the stock price is A$37 a share, the company would offer to buy back 5 million shares in a range of A$38 to A$40 a share. Each shareholder would then indicate the number of shares and the lowest price at which he or she would be willing to sell. The company would then begin to qualify bids beginning with those shareholders who submitted bids at A$38 and continue to qualify bids at higher prices until 5 million shares had been qualified. In our example, that price might be A$39. Shareholders who bid between A$38 and A$39, inclusive, would then be paid A$39 per share for their shares. Like Method 2, Dutch auctions can be accomplished in a short time period.
4. **Repurchase by direct negotiation.** In some markets, a company may negotiate with a major shareholder to buy back its shares, often at a premium to the market price. The company may do this to keep a large block of shares from overhanging the market (and thus acting to dampen the share price). A company may try to prevent an "activist" shareholder from gaining representation on the board of directors. In some of the more infamous cases, unsuccessful takeover attempts have ended with the company buying back the would-be suitor's shares at a premium to the market price, referred to as a **greenmail** transaction, often to the detriment of remaining shareholders. Private repurchases can also be made at discounts to the market price, reflecting the relatively weaker negotiating position of large investors with liquidity needs.

Outside the United States and Canada, almost all share repurchases occur in the open market (Method 1). Note that not all the methods listed may be permissible according to local regulations.

EXAMPLE 12

BCII Considers Alternative Methods of Share Repurchase

The board of directors of British Columbia Industries, Inc. (BCII) is considering a 5 million common share repurchase program. BCII has a sizable cash and marketable securities portfolio. BCII's current stock price is C$37. The company's chief financial officer wants to accomplish the share repurchases in a cost-effective manner. Some board members want repurchases accomplished as quickly as possible, whereas other board members mention the importance of flexibility. Discuss the relative advantages of each of the following methods with respect to cost, flexibility, and speed:

1. Open market share repurchases.

Solution:

Open market share repurchases give the company the most flexibility. BCII can time repurchases, making repurchases when the market prices its stock below its perceived intrinsic value. BCII can also change amounts repurchased or even not execute the repurchase program. Open market repurchases are typically made opportunistically, with cost a more important consideration than speed. Because open market repurchases can be conducted so as to minimize any effects on price and can be timed to exploit prices that

are perceived to be below intrinsic value, this method is also relatively cost effective.

2. A fixed price tender offer.

Solution:

A fixed price tender offer can be accomplished quickly, but the company usually has to offer a premium. Obviously, this raises the cost of the buyback; however, the premium may provide a positive signal to investors regarding management's view of the value of the stock.

3. Dutch auction tender offer.

Solution:

Dutch auctions generally enable a company to do the buyback at a lower price than with a fixed price tender offer. For example, a fixed price tender offer for 5 million shares at C$40 would cost BCII C$200 million. If the Dutch auction were successful at C$38, the cost would be C$190 million, a savings of C$10 million. Dutch auctions can be accomplished quickly, though usually not as quickly as fixed price tender offers

Financial Statement Effects of Repurchases

Share repurchases affect both the balance sheet and income statement. Both assets and shareholders' equity decline if the repurchase is made with surplus cash. As a result, leverage increases. Debt ratios (leverage) will increase even more if the repurchase is financed with debt.

On the income statement, fewer shares outstanding could increase earnings per share (i.e., by reducing the denominator) depending on how and at what cost the repurchase is financed. We discuss the effects on the income statement and balance sheet in the following sections.

Changes in Earnings per Share

One rationale for share repurchases often cited by corporate financial officers and some investment analysts is that reducing the number of shares outstanding can increase earnings per share (EPS). Assuming a company's net income does not change, a smaller number of shares after the buyback will produce a higher EPS. If a company's share repurchase is financed by high-cost borrowing, the resulting lower net income can offset the effect of the reduced shares outstanding, producing a lower EPS.

Example 13 and Example 14 show changes in EPS resulting from alternative methods of financing a share repurchase.

EXAMPLE 13

Share Repurchase Using Surplus Cash

1. Takemiya Industries, a Japanese company, has been accumulating cash in recent years with a plan of expanding in emerging Asian markets. Takemiya's management and directors believe that such expansion is no longer practical, and they are considering a share repurchase using surplus cash. Takemiya has 10 million shares outstanding, and its net income is ¥100 million. Takemiya's share price is ¥120. Cash not needed for operations totals ¥240

million and is invested in Japanese government short-term securities that earn close to zero interest. For a share repurchase program of the contemplated size, Takemiya's investment bankers think the stock could be bought in the open market at a ¥20 premium to the current market price, or ¥140 a share. Calculate the impact on EPS if Takemiya uses the surplus cash to repurchase shares at ¥140 per share.

Solution:

First, note that current EPS = (¥100 million net income)/(10 million shares) = ¥10.00. If Takemiya repurchases shares, net income is unchanged at ¥100 million. A share repurchase at ¥140 a share reduces share count by approximately 1.7 million shares (¥240,000,000/¥140) so that 8.3 million shares remain outstanding. Thus, after the share repurchase, EPS should be (¥100 million)/(8.3 million shares) = ¥12.00, approximately. EPS would increase by 20% as a result of the share repurchase. Note that EPS would increase even more if the open market purchases were accomplished at the prevailing market price without the premium.

In the absence of surplus cash and equivalents, companies may fund share repurchases by using long-term debt. Example 14 shows that any increase in EPS is dependent on the company's after-tax borrowing rate on the funds used to repurchase stock.

EXAMPLE 14

Share Repurchases Using Borrowed Funds

Selamat Plantations, Inc., plans to borrow Malaysian ringgit (MYR)12 million, which it will use to repurchase shares. The following information is given:

- Share price at time of share repurchase = MYR60
- Earnings after tax = MYR6.6 million
- EPS before share repurchase = MYR3
- Price/Earnings (P/E) = MYR60/MYR3 = 20
- Earnings yield (E/P) = MYR3/MYR60 = 5%
- Shares outstanding = 2.2 million
- Planned share repurchase = 200,000 shares

1. Calculate the EPS after the share repurchase, assuming the after-tax cost of borrowing is 5%.

Solution:

EPS after buyback = (Earnings − After-tax cost of funds)/Shares outstanding after buyback

= [MYR6.6 million − (MYR12 million × 0.05)]/2 million shares

= [MYR6.6 million − (MYR0.6 million)]/2 million shares

= MYR6.0 million/2 million shares

= MYR3.00

With the after-tax cost of borrowing at 5%, the share repurchase has no effect on the company's EPS. Note that the stock's earnings yield, the ratio of earnings per share to share price or E/P, was MYR3/MYR60 = 0.05 or 5%, equal to the after-tax cost of debt.

2. Calculate the EPS after the share repurchase, assuming the company's borrowing rate increases to 6% because of the increased financial risk of borrowing the MYR12 million.

Solution:

EPS after buyback = (Earnings − After-tax cost of funds)/Shares outstanding after buyback

= [MYR6.6 million − (MYR12 million × 0.06)]/2 million shares

= [MYR6.6 million − (MYR0.72 million)]/2 million shares

= MYR5.88 million/2 million shares

= MYR2.94

Note that in this case, the after-tax cost of debt, 6%, is greater than the 5% earnings yield; thus, a reduction in EPS resulted.

In summary, a share repurchase may increase, decrease, or have no effect on EPS. The effect depends on whether the repurchase is financed internally or externally. In the case of internal financing, a repurchase increases EPS only if the funds used for the repurchase would *not* earn their cost of capital if retained by the company. In the case of external financing, the effect on EPS is positive if the earnings yield exceeds the after-tax cost of financing the repurchase. In Example 14, when the after-tax borrowing rate equaled the earnings yield of 5%, EPS was unchanged as a result of the buyback. Any after-tax borrowing rate above the earnings yield would result in a decline in EPS, whereas an after-tax borrowing rate less than the earnings yield would result in an increase in EPS.

These relationships should be viewed with caution so far as any valuation implications are concerned. Notably, to infer that an increase in EPS indicates an increase in shareholders' wealth would be incorrect. For example, the same surplus cash could also be distributed as a cash dividend. Informally, if one views the total return on a stock as the sum of the dividend yield and a capital gains return, any capital gains as a result of the boost to EPS from the share repurchase may be at the expense of an offsetting loss in dividend yield.

Changes in Book Value per Share

Price-to-book value per share is a popular ratio used in equity valuation. The following example shows the impact of a share repurchase on book value per share (BVPS).

EXAMPLE 15

The Effect of a Share Repurchase on Book Value per Share

The market price of both Company A's and Company B's common stock is US$20 a share, and each company has 10 million shares outstanding. Both companies have announced a US$5 million buyback. The only difference is that Company A has a market price per share greater than its book value per share, whereas Company B has a market price per share less than its book value per share:

- Company A has a book value of equity of US$100 million and BVPS of US$100 million/10 million shares = US$10. *The market price per share of US$20 is greater than BVPS of US$10.*
- Company B has a book value of equity of US$300 million and BVPS of US$300 million/10 million shares = US$30. *The market price per share of US$20 is less than BVPS of US$30.*

Both companies:

- buy back 250,000 shares at the market price per share (US$5 million buyback/US$20 per share = 250,000 shares) and
- are left with 9.75 million shares outstanding (10 million pre-buyback shares – 0.25 million repurchased shares = 9.75 million shares).

After the share repurchase:

- Company A's shareholders' equity at book value falls to US$95 million (US$100 million – US$5 million), and its *book value per share decreases* from US$10 to US$9.74 (shareholders' equity/shares outstanding = US$95 million/9.75 million shares = US$9.74).
- Company B's shareholders' equity at book value falls to US$295 million (US$300 million – US$5 million), and its *book value per share increases* from US$30 to US$30.26 (shareholders' equity/shares outstanding = US$295 million/9.75 million = US$30.26).

This example shows that when the market price per share is greater than its book value per share, BVPS will decrease after the share repurchase. When the market price per share is less than BVPS, however, BVPS will increase after a share repurchase.

VALUATION EQUIVALENCE OF CASH DIVIDENDS AND SHARE REPURCHASE

8

☐ explain the choice between paying cash dividends and repurchasing shares

A share repurchase should be viewed as equivalent to the payment of cash dividends of equal amount in terms of the effect on shareholders' wealth, all other things being equal. "All other things being equal" in this context is shorthand for assumptions that the taxation and information content of cash dividends and share repurchases do not differ. Understanding this baseline equivalence result permits more advanced analysis for when taxation and/or information content do differ between cash dividends and share repurchases. Example 16 demonstrates the claim of equivalence in the "all other things being equal" case.

EXAMPLE 16

The Equivalence of Share Repurchases and Cash Dividends

1. Rohit Chemical Industries, Inc. (RCII) has 10 million shares outstanding with a current market value of Rs200 per share. WCII's board of directors is considering two ways of distributing RCII's current Rs500 million free cash flow to equity. The first method involves paying an irregular or special cash dividend of Rs500 million/10 million = Rs50 per share. The second method involves repurchasing Rs500 million worth of shares. For simplicity, we make the assumptions that dividends are received when the shares go ex-dividend and that any quantity of shares can be bought at the market price of Rs200 per share. We also assume that the taxation and information content of cash dividends and share repurchases, if any, do not differ. How would the wealth of a shareholder be affected by RCII's choice of method in distributing the Rs500 million?

Solution:

Cash Dividend

After the shares go ex-dividend, a shareholder of a single share would have Rs50 in cash (the dividend) and a share worth Rs200 – Rs50 = Rs150. The ex-dividend value of Rs150 can be demonstrated as the market value of equity after the distribution of Rs500 million divided by the (unchanged) number of shares outstanding after the dividend payment, or [(10 million) (Rs200) – Rs500 million]/10 million = Rs1,500 million/10 million = Rs150. Total wealth from ownership of one share is, therefore, Rs50 + Rs150 = Rs200.

Share Repurchase

With Rs500 million, RCII could repurchase Rs500 million/Rs200 = 2.5 million shares. The post-repurchase share price would be unchanged at Rs200, which can be calculated as the market value of equity after the Rs500 million share repurchase divided by the shares outstanding after the share repurchase, or [(10 million) (Rs200) – Rs500 million]/(10 million – 2.5 million) = Rs1,500 million/7.5 million = Rs200. Total wealth from ownership of one share is, therefore, Rs200—exactly the same as in the case of a cash dividend. Whether the shareholder actually sold the share back to RCII in the share repurchase is irrelevant for a shareholder's wealth: If the share was sold, Rs200 in cash would be realized; if the share was not sold, its market value of Rs200 would count equally toward the shareholder's wealth.

The theme of Example 16 is that a company should not expect to create or destroy shareholder wealth merely by its method of distributing money to shareholders (i.e., by share repurchases as opposed to cash dividends). Example 17 illustrates that if a company repurchases shares from an individual shareholder at a negotiated price representing a premium over the market price, the remaining shareholders' wealth is reduced.

EXAMPLE 17

Direct Negotiation: A Share Repurchase That Transfers Wealth

1. AfriCitrus (AC) common shares sell at South African rand (ZAR)200, and there are 10 million shares outstanding. Management becomes aware that Kirk Mzazi recently purchased a major position in its outstanding shares with the intention of influencing the business operations of AC in ways the current board does not approve. An adviser to the board has suggested approaching Mzazi privately with an offer to buy back ZAR500 million worth of shares from him at ZAR250 per share, which is a ZAR50 premium over the current market price. The board of AC declines to do so because of the effect of such a repurchase on AC's other shareholders. Determine the effect of the proposed share repurchase on the wealth of shareholders other than Mzazi.

Solution:

With ZAR500 million, AC could repurchase ZAR500 million/ZAR250 = 2 million shares from Mzazi. The post-repurchase share price would be ZAR187.50, which can be calculated as the market value of equity after the ZAR500 million share repurchase divided by the shares outstanding after the share repurchase, or [(10 million)(ZAR200) – ZAR500 million]/(10 million – 2 million) = ZAR1,500 million/8 million = ZAR187.50. Shareholders other than Mzazi would lose ZAR200 – ZAR187. 50 = ZAR12.50 for each share owned. Although this share repurchase would conserve total wealth (including Mzazi's), it effectively transfers wealth to Mzazi from the other shareholders.

THE DIVIDEND VERSUS SHARE REPURCHASE DECISION

9

☐ explain the choice between paying cash dividends and repurchasing shares

The question of the valuation implications of share repurchases and dividends is of great interest to investors. Many investors and corporate managers believe that share repurchases have, on average, a net positive effect on shareholder value Studies have found that share repurchase announcements are accompanied by significant positive excess returns both around the announcement date and for the next two years—and

in some studies, five years. An explanation consistent with that finding is that managements tend to buy back their stock when it is undervalued in the marketplace and issue stock when it is overvalued.

Theory concerning the dividend–share repurchase decision generally concludes that share repurchases are equivalent to cash dividends of equal amount in their effect on shareholders' wealth, all other things being equal. Further discussion about the choice revolves around what might not "be equal" and what might cause one distribution mechanism to be preferred over the other. The use of share repurchases also may be legally restricted.

In general, share repurchases can be considered part of a company's broad policy on distributing earnings to shareholders. Also, a company may engage in share repurchases for reasons similar to those mentioned in connection with cash dividends—for example, to distribute free cash flow to equity to common shareholders. A number of additional reasons for share repurchases include the following:

- Potential tax advantages
- Share price support/signaling that the company considers its shares a good investment
- Added managerial flexibility
- Offsetting dilution from employee stock options
- Increasing financial leverage

In jurisdictions that tax shareholder dividends at higher rates than capital gains, share repurchases have a tax advantage over cash dividends. Even if the two tax rates are equal, the option to defer capital gains taxes—by deciding not to participate in the share repurchase—will be valuable to many investors.

Management of a company may view its own shares as undervalued in the marketplace and hence a good investment. Although management's stock market judgment can be just as good or bad as that of any other market participant, corporate management typically does have more information about the company's operation and future prospects than does any outside investor or analyst. Furthermore, share repurchases via open market purchase, the dominant repurchase mechanism, allow management to time share repurchases with respect to market price. The announcement of a share repurchase program is often understood as a positive signal about the company's prospects and attractiveness as an investment. An unexpected announcement of a meaningful share repurchase program can often have the same positive impact on share price as would a better-than-expected earnings report or similar positive event. In the days following the global stock market crash of October 1987, a number of prominent companies announced huge buybacks in an effort to halt the slide in the price of their shares and show confidence in the future. It may have been an important aspect in the stock market recovery that followed. Some investment analysts, however, take issue with the notion that initiation of share repurchases is a positive signal, because a repurchase program could mean that the company has no new profitable investment opportunities and is thus returning cash to shareholders.

Unlike regular cash dividends, share repurchase programs appear not to create the expectation among investors of continuance in the future. Furthermore, in contrast to an announced dividend, the announcement of a share repurchase by open market purchase does not typically create an obligation to follow through with repurchases. Additionally, the timing of share repurchases via open market activity is at managers' discretion. Share repurchases also afford shareholders flexibility because participation is optional, which is not the case with the receipt of cash dividends.

For some companies, share repurchases are used to offset the possible dilution of earnings per share that may result from the exercise of employee stock options. Whether stated or not, many companies try to repurchase at least as many shares as were issued in the exercise of stock options—even though the options are typically exercised at lower prices than the repurchase price.

Another reason for repurchasing shares is to modify the company's capital structure because share repurchases can be used to increase leverage. Share buybacks funded by newly issued debt increase leverage more than those funded by surplus cash.

Among other reasons mentioned for share repurchases by corporate managers is the objective of increasing EPS. This objective, however, is problematic for two reasons. First, even when share repurchases result in an EPS increase, the required rate of return will likely increase, reflecting higher leverage. Second, according to finance theory, changing EPS by changing the number of shares outstanding does not affect shareholder wealth given that total free cash flow is unchanged.

EXAMPLE 18

Share Repurchase to Increase Financial Leverage

Deira Oasis Holdings Inc. (DOHI), with debt and a debt ratio of United Arab Emirates durham (AED)30 million and 30%, respectively, plans a share repurchase program involving AED7 million or 10% of the market value of its common shares.

1. Assuming nothing else changes, what debt ratio would result from financing the repurchases using cash on hand?

Solution:

Assuming nothing else changes, if DOHI uses cash on hand to make the share repurchase, the debt ratio would increase to 32% (AED30 million/AED93million = 0.3226 or 32.3%).

2. Assuming nothing else changes, what debt ratio would result from financing the repurchases using new debt?

Solution:

Assuming nothing else changes, if DOHI uses debt to finance the share repurchase, the debt ratio would increase to 37% (AED37 million/AED100 million = 0.3700 or 37.0%).

3. Discuss the effect on value of equity from financing the repurchases using cash on hand, assuming DOHI's net income and P/E remain the same.

Solution:

After repurchase, DOHI's equity stands at AED63 million. However, with the same net income and fewer shares outstanding, its EPS would increase. Then, with the same P/E, DOHI's market value of equity would be expected to increase above AED63 million.

4. Discuss the effect on value of equity from financing the repurchases using new debt, assuming DOHI's after-tax cost of debt is greater than its E/P, which remains the same.

Solution:

After repurchase, DOHI's equity stands at AED63 million. However, with the after-tax cost of debt exceeding the E/P, its EPS would decrease. Then, with the same P/E, DOHI's market value of equity would be expected to decrease below AED63 million.

5. Discuss the effect on value of debt from financing the repurchases using new debt, assuming the conditions in question 4 and knowing that DOHI is in imminent danger of a credit rating downgrade.

Solution:

After repurchase, DOHI's debt stands at AED37 million. However, with the real threat of a credit rating downgrade, spreads for DOHI's debt versus government treasuries would widen. Then, DOHI's market value of debt would be expected to decrease below AED37 million.

Note that with the assumptions in questions 4 and 5, the post-repurchase market values of both equity and debt would be expected to decrease. Therefore, the proportion of each in DOHI's post-repurchase capital structure is indeterminate based on the information given.
Exhibit 9 shows the results. By either means of financing the share repurchase, financial leverage increases.

Exhibit 9: Estimated Impact on Capital Structure (AED millions)

			After Buyback			
	Before Buyback		All Cash		All Debt	
	AED	%	AED	%	AED	%
Debt	30	30	30	32	37	37
Equity (at market)	70	70	63	68	63	63
Total Cap	100	100	93	100	100	100

Deira Oasis Holdings' beginning debt ratio was 30%. If Deira Oasis Holdings uses borrowed funds to repurchase equity, the debt ratio at market value will increase to 37%, which is significantly more than if it used excess cash (32%).

EXAMPLE 19

ITOCHU Corporation Announces Share Buyback to Improve ROE

1. In October 2018, ITOCHU Corporation, a leading Japanese *sogo shosha* (general trading company), reported that in order to improve its return on equity (ROE) it would repurchase shares by fiscal year-end March 2019 to achieve a target medium-to-long-term ROE of 13% or higher. Accordingly, ITOCHU said it could repurchase shares in the amount up to ¥30 billion. In February 2019, ITOCHU announced it was increasing its share repurchase

target up to ¥100 billion. ITOCHU repurchases in these first two tranches are shown in Exhibit 10.

Exhibit 10: Share Buyback Activities, October 2018 to March 2019

Period	Shares Repurchased	Average Price (¥)	Total Value (¥)
December 2018 – January 2019	15,097,200	1,987	30 billion
February – March 2019	19,024,200	1.997	38 billion
Sum	**34,121,400**	**1,993**	**68 billion**

Source: Annual Report 2019 (online version), ITOCHU Corporation: https://www.itochu.co.jp/en/ir/financial_statements/2020/__icsFiles/afieldfile/2019/08/09/20_1st_03_e.pdf.

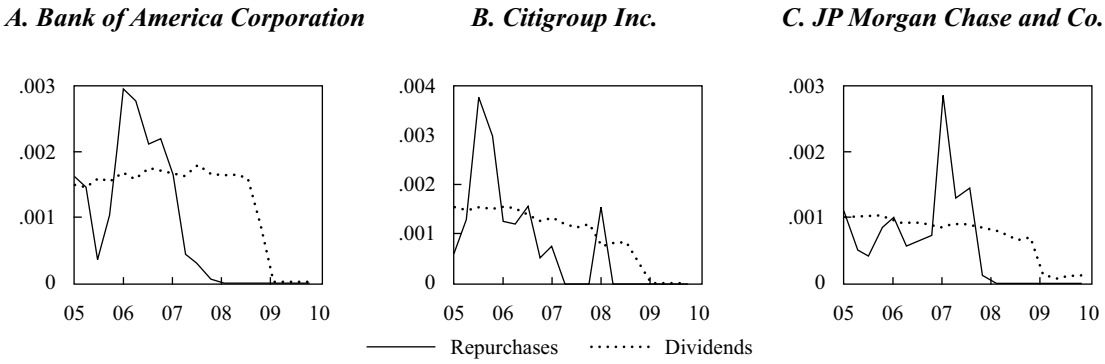
ITOCHU was followed by many other large Japanese companies—including SoftBank, Sony, Haseko, Tokyo Tatemono, and Toppan Printing. Also in February 2019, these companies announced large share buyback programs to improve ROE in response to shareholder activist pressure to improve shareholder returns and governance.

A company can use both special cash dividends and share repurchases as a supplement to regular cash dividends. These means of distributing cash are often used in years when there are large and extraordinary increases in cash flow that are not expected to continue in future years. In making these types of payments, the company essentially communicates that the distribution, like the increase in cash flow, should not be expected to continue in the future. In this context, a share repurchase is effectively an alternative to paying a special cash dividend.

Some companies initiate payouts to shareholders using share repurchases rather than cash dividends. As with the case of a share repurchase substituting for a special cash dividend, the use of share repurchases is again with the expectation that it will not be viewed as creating a fixed commitment.

Although all of the preceding can be the stated or unstated reasons for share repurchases, in general, share repurchases increase when the economy is strong and companies have more cash. During recessions, when cash is often short, share repurchases typically fall. From the fourth quarter of 2004 to the fourth quarter of 2008, the 500 companies in the S&P 500 spent US$1.8 trillion on share repurchases as compared with US$2 trillion on capital expenditures and US$1 trillion on cash dividends. In the market crash of 2008–2009, share repurchases plummeted. Major companies (particularly in the global financial sector) that had made large share repurchases encountered challenges to their financial viability in 2008 and 2009. This caused them to abandon their share repurchases and then to drastically curtail, or even eliminate, their dividends. The predominance of large US banks abandoning their share repurchase programs following the 2008 global financial crisis is shown in Exhibit 11.

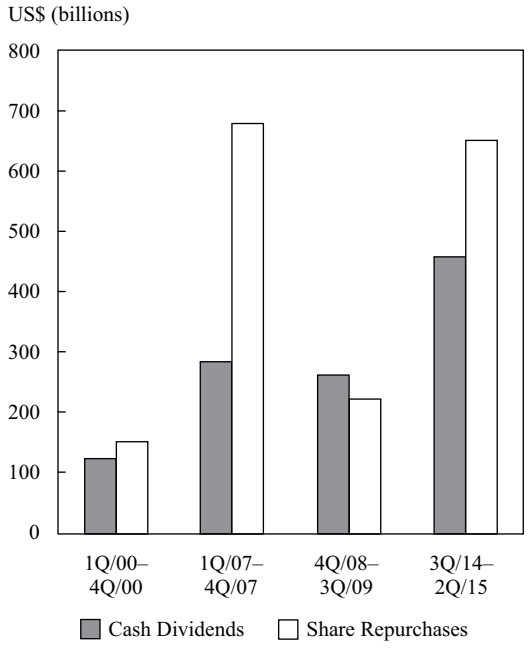
Exhibit 11: Historical Example: Share Repurchases and Dividends for Several Large US Banks



Source: Hirtle (2016).

The curtailing of share repurchases following the 2008 global financial crisis was a general occurrence; it was not restricted to the banking sector. As can be seen in Exhibit 12, data for the companies in the Russell 1000 Index, a broader US stock index than the S&P 500, show that share repurchases grew at almost twice the rate of cash dividends between 2000 and 2007, 25.0% compared to 13.0%. However, during the financial crisis of 2008–2009, companies cut back sharply on their discretionary share repurchases, from US$680 billion to US$223 billion, because many faced shrinking operating cash flows or even financial distress. Although cash dividends were also cut, the decline was much less considerable (US$286 billion to US$262 billion). By 2015, corporate operating cash flows had recovered to the point where total distributions (cash dividends plus share repurchases) reached US$1,102 billion, surpassing their previous peak of US$966 billion in 2007. Share repurchases increased nearly three times from their 2009 levels to reach US$650 billion. However, cash dividends reached US$452 billion, or over 40% of total distributions; this compares to slightly less than 30% of total distributions (US$286 billion/US$966 billion) in 2007. The higher proportion of dividends in total distributions may reflect investors' increased appetite for dividend yield during the extended period of low (or even negative) interest rates on many fixed-income securities that has prevailed in many developed countries since the end of the financial crisis.

Exhibit 12: Historical Example: Share Repurchases and Cash Dividends: Russell 1000 Companies (2000 to 2015)



Time Period	Cash Dividends*	Share Repurchases	CAGR Cash Dividends	CAGR Repurchases
	(US$ billions)		(Base Year is 2000)	
1Q2000–4Q2000	126	152	—	—
1Q2007–4Q2007	286	680	13.0%	25.0%
4Q2008–3Q2009	262	223	9.0%	4.0%
3Q2014–2Q2015	452	650	10.0%	11.0%

** Includes special dividends.*

Source: JP Morgan, "2015 Distribution Policy" (September 2015).

Example 20, in which a hypothetical company's board of directors initiates a cash dividend, integrates a number of themes related to cash dividends, stock dividends (in which additional shares are distributed to shareholders instead of cash), and share repurchases.

EXAMPLE 20

Shenzhen Medical Devices' Dividend Policy Decision

Shenzhen Medical Devices Ltd. (SMDL) is a hypothetical company based in Shenzhen, China. SMDL is emerging as a leader in providing medical testing equipment to the pharmaceutical and biotechnology industries. SMDL's primary markets are growing, and the company is spending ¥100 million a year on research and development to enhance its competitive position. SMDL is highly profitable and has substantial positive free cash flow after funding positive NPV projects. During the past three years, SMDL has made significant share repurchases. Subsequent to the removal of tax on cash dividends from shares

held more than a year in mainland China, SMDL management is proposing the initiation of a cash dividend. The first dividend is proposed to be an annual dividend of ¥0.40 a share to be paid during the next fiscal year. Based on estimated earnings per share of ¥3.20, this dividend would represent a payout ratio (DPS/EPS) of 0.125 or 12.5%. The proposal that will be brought before the board of directors is the following:

"Proposed: Shenzhen Medical Devices Ltd. will institute a program of cash dividends. The first dividend will be an annual dividend of ¥0.40 a share, to be paid at a time to be determined during the next fiscal year. Thereafter, an annual dividend will be paid, equal to or above this amount, consistent with the intention of reaching a target payout ratio of 25% in line with management's expectation for long-term sustainable earnings—thereby retaining funds sufficient to finance profitable capital projects."

The company's board of directors will formally consider the dividend proposal at its next meeting in one month's time. Although some directors favor the dividend initiation proposal, other directors, led by Director Z, are skeptical of it. Director Z has stated:

"The initiation of a cash dividend will suggest to investors that SMDL is no longer a growth company."

As a counterproposal, Director Z has offered his support for the initiation of an annual 2% stock dividend. Director W, a director who is neutral to both the cash dividend and stock dividend ideas, has told Director Z the following:

"A 2% stock dividend will not affect the wealth of our shareholders."

Exhibit 13 presents selected *pro forma* financials of SMDL, if the directors approve the initiation of a cash dividend.

Exhibit 13: Shenzhen Medical Devices Ltd. Pro Forma Financial Data Assuming Cash Dividend (¥ millions)

Income Statement		Statement of Cash Flows	
Sales	1,200	Cash flow from operations	135
Earnings before taxes	155	Cash flow from investing activities	(84)
Taxes	35	Cash flow from financing activities	
Net income	120	Debt repayment	(4)
		Share repurchase	(32)
		Proposed dividend	(15)
		Estimated change in cash	0

Ratios		Five-Year Forecasts	
Current ratio	2.1	Sales growth	8% annually
Debt/Equity (at market)	0.27	Earnings growth	11% annually
Interest coverage	10.8x	Projected cost of capital	10%
ROA	10.0%		
ROE	19.3%		
P/E	20x		
E/P	5.0%		

Using the information provided, address the following:

1. Critique Director Z's statement.

Solution:

The following points argue against the thesis of Director Z's statement:

- As discussed in the text, dividend initiations and increases are on average associated with higher future earnings growth.
- Forecasted sales and earnings growth rates are relatively high.
- SMDL still has considerable positive NPV projects available to it, as shown by the cash flow from investing activities of negative ¥84 million. This fact is consistent with SMDL being a company with substantial current growth opportunities.
- For the past three years, SMDL has been making share repurchases, so investors are already cognizant that management is distributing cash to shareholders. The initiation of a dividend as a continuation of that policy is less likely to be interpreted as an information signaling event.

2. Justify Director W's statement.

Solution:

A stock dividend has no effect on shareholder wealth. A shareholder owns the same percentage of the company and its earnings as it did before the stock dividend. All other things being equal, the price of a stock will decline to reflect the stock dividend, but the decline will be exactly offset by the greater number of shares owned.

3. Identify and explain the dividend policy that the proposed ¥0.40 a share cash dividend reflects.

Solution:

As shown in the statement of cash flows, the ¥0.40 a share annual dividend reflects a total amount of ¥15 million, fully using SMDL's free cash flow after acceptance of positive NPV projects. However, the proposal brought before the board also states a commitment to maintain the annual dividend at ¥0.40 a share (or greater), as a stable dividend policy would typically imply. Further, the proposal refers to a target payout ratio based on long-term sustainable earnings. These facts taken together are most consistent with a stable dividend policy based on a target payout adjustment model. (The relatively low target payout ratio of 25% of long-term sustainable earnings allows for sufficient funding of profitable capital projects, suitable for maintaining growth as a pharmaceutical company.)

10 ANALYSIS OF DIVIDEND SAFETY

- ☐ calculate and interpret dividend coverage ratios based on 1) net income and 2) free cash flow
- ☐ identify characteristics of companies that may not be able to sustain their cash dividend

The global recession that began in late 2007 gave rise to the largest number of dividend cuts and suspensions since the Great Depression of the 1930s. By mid-2009, S&P 500 dividends for US companies were down by 25% from the prior year, and, as indicated earlier in Exhibit 13, by 3Q 2009 dividends for companies in the broader Russell 1000 index declined by over 8% from 2007 levels. Other markets experienced similar dividend cuts following the global financial crisis; for example, UK companies reduced dividends by 15% and Australian companies by 9% in 2009. In this section, we discuss how an analyst can form a judgment on the likelihood that a company's cash dividend may be cut.

The traditional way of looking at dividend safety is the dividend payout ratio (dividends/net income) and its inverse, the **dividend coverage ratio** (net income/dividends). A higher dividend payout ratio or a lower dividend coverage ratio tends to indicate, all else equal, higher risk of a dividend cut. The logic is that with a relatively high dividend payout ratio, a relatively small percentage decline in earnings could cause the dividend not to be payable out of earnings.

EXAMPLE 21

Traditional Measures of Dividend Safety

1. Given the following data, calculate the dividend payout and coverage ratios:

Mature European SA	FY2019
Net income available for common stock	€100 million
Dividends paid	€40 million

Solution:

Dividend payout ratio	40/100 = 40%
Dividend coverage ratio	100/40 = 2.5x

In judging these ratios, various generalizations may be stated based on observed practice. In stating these generalizations, we emphasize that they should be confirmed for the particular market and time period being addressed.

Small, young companies generally do not pay dividends, preferring to reinvest internally for growth. However, as such companies grow, they typically initiate dividends and their payout ratios tend to increase over time. Large mature companies often target dividend payout ratios of 40% to 60% so that dividend coverage ratios range from about 1.7x to 2.5x, excluding "extra" payments. Mature companies are expected to be in this range over the course of a 5- to 10-year business cycle. Higher dividend payout ratios (or lower dividend coverage ratios) often constitute a risk factor that a dividend may be cut if earnings decline. High dividend payout ratios in relation

to those of peer group companies may also point to dividend safety concerns. When a dividend coverage ratio drops to 1.0, the dividend is considered to be in jeopardy unless non-recurring events, such as an employee strike or a typhoon, are responsible for a temporary decline in earnings. In judging safety, qualitative pluses are awarded for companies that have had stable or increasing dividends, while minuses accrue to companies that have reduced their dividend in the past. Indeed, concerning this issue, Graham et al. (1962) stated that "[t]he absence of rate reduction in the past record is perhaps as important as the presence of numerous rate advances."

Free cash flow to equity represents the cash flow available for distribution as dividends after taking account of working and fixed capital expenditure needs. If those needs are ignored, distribution of dividends may be at cross-purposes with shareholder wealth maximization. Cash flow—specifically, free cash flow to equity (FCFE)—not reported net income, should be viewed as the source of cash dividend payments from that perspective. Thus, analysis of dividend safety can properly include payout and coverage ratios based on FCFE rather than net income. Other cash flow definitions besides FCFE have also been used in such ratios. Examining the correlation of dividends with cash flow measures may also provide insights.

Payouts should be considered in terms of share repurchases as well as dividends because they both represent cash distributions to shareholders. Arguably, a comprehensive measure of dividend safety would relate FCFE to both cash dividends and share repurchases:

FCFE coverage ratio = FCFE/[Dividends + Share repurchases].

If that ratio is 1, the company is returning all available cash to shareholders. If it is significantly greater than 1, the company is improving liquidity by using funds to increase cash and/or marketable securities. A ratio significantly less than 1 is not sustainable because the company is paying out more than it can afford by drawing down existing cash/marketable securities, thereby decreasing liquidity. At some point the company will have to raise new equity or cut back on capital spending.

Fundamental risk factors with regard to dividend safety include above-average financial leverage. Additional issuance of debt, whether to fund projects or to finance the dividend, may be restricted during business downturns.

Example 22 shows an analysis of dividend sustainability for Lygon Resources Ltd. (Lygon), a hypothetical company that is one of the world's largest producers of fertilizer products. The analysis includes the traditional earnings/dividend coverage approach and an alternative FCFE approach that considers total cash payouts to shareholders—dividends and share repurchases.

EXAMPLE 22

Lygon's Coverage Ratios

Lygon Resources Ltd. is a lithium miner and producer with operations in Australia, South America, and South Africa, and export markets worldwide. The company has paid dividends since 1995. Exhibit 14 shows financial information for the company.

Exhibit 14: Lygon Resources

Years Ending 31 December (A$ millions)	2015	2016	2017	2018
Net income (earnings)	540	458	399	341
Cash flow from operations	837	824	679	628
FCInv (capital expenditures)	554	417	296	327

Years Ending 31 December (A$ millions)	2015	2016	2017	2018
Net borrowing	(120)	(39)	79	(7)
Dividends paid	121	256	277	323
Stock repurchases	0	105	277	0

1. Using the above information, calculate the following for 2015, 2016, 2017, and 2018:
   - **A.** Dividend/earnings payout ratio.
   - **B.** Earnings/dividend coverage ratio.
   - **C.** Free cash flow to equity (FCFE).
   - **D.** FCFE/[Dividend + Stock repurchase] coverage ratio.

Solution:

- **A.** Dividend/earnings payout = A$121/A$540 = 0.224 or 22.4% in 2015; A$256/A$458 = 0.559 or 55.9% in 2016; 0.694 or 69.4% in 2017; and 0.947 or 94.7% in 2018.
- **B.** Earnings/dividend coverage = A$540/A$121 = 4.46x in 2015; A$458/A$256 = 1.79x in 2016; 1.44x in 2017; and 1.06x in 2018.
- **C.** FCFE = Cash flow from operations (CFO) – FCInv + Net borrowing = A$837 – A$554 + (A$120) = A$163 in 2015; A$824 – A$417 + (A$39) = A$368 in 2016; A$462 in 2017; and A$294 in 2018.
- **D.** FCFE coverage of dividends + Share repurchases = FCFE/[Dividends + Stock repurchases] = A$163/(A$121 + 0) = 1.35x in 2015, and A$368/(A$256 + A$105) = 1.02x in 2016. Similar calculations result in 0.83x in 2017 and 0.91x in 2018.

These results are summarized in Exhibit 15.

Exhibit 15: Lygon Resources Coverage Ratios

Years Ending 31 December	2015	2016	2017	2018
A. Dividend-to-earnings payout ratio	22.4%	55.9%	69.4%	94.7%
B. Earnings-to-dividend coverage ratio (x)	4.46	1.79	1.44	1.06
C. Free cash flow to equity (FCFE) (mil.)	163	368	462	294
D. FCFE/[div. + stock repurch.] cover. (x)	1.35	1.02	0.83	0.91

2. Discuss the trends in earnings/dividend coverage and in FCFE/[Dividend + Stock repurchase] coverage.

Solution:

Although earnings/dividend coverage was nearly 4.5x in 2015, it declined steadily over the four years. By 2018, accounting earnings were just sufficient to pay the dividend (1.06x earnings-to-dividend coverage ratio). An analyst who looked at this metric should have suspected problems.

The FCFE coverage ratio was 1.35x in 2015, a year before the stock repurchase program began. In 2016, the FCFE coverage of dividends and stock repurchases declined to 1.02x. Lower capital expenditures were offset by in-

creased dividends and the new stock repurchase program. Despite declining capital expenditures and positive net borrowings, the FCFE coverage ratio continued to fall substantially to 0.83x in 2017 as the company elected to increase distributions to shareholders. Despite completing the stock repurchase program the previous year, by 2018 FCFE had deteriorated so much that FCFE coverage of dividends was still less than 1.0x (0.91x).

3. Comment on the sustainability of Lygon's dividend and stock repurchase policy after 2017/2018.

Solution:

With the FCFE coverage ratio falling to 0.83x in 2017, management likely realized that it was not prudent to undertake any new discretionary stock repurchases. By 2018, net income was still declining and FCFE coverage of the dividend at less than 1.0x meant that management should probably consider cutting the dividend.

The deterioration over time of Lygon's earnings/dividend coverage and FCFE coverage (of dividends and stock repurchases) was clear. There may be other instances when the earnings-to-dividend coverage ratio declines but still appears healthy. This is why it is important for analysts to closely examine the level and trend of the FCFE coverage ratio and the components of FCFE. Analysts should be particularly alert to companies that support their dividends and stock repurchases by reducing productive capital spending or by adding net debt or by some combination of the two because these neither are sustainable policies.

Whether based on a company's net income or free cash flow, past financial data do not always predict dividend safety. Surprise factors and other unexpected events can confound the most rigorous analysis of past data. Equity and debt markets were shaken in 2008–2009 by the losses taken by almost all US and European banks. These losses led to the cutting and, in some cases, virtual elimination of cash dividends. Not all 21st century investors would agree with Graham et al.'s 1962 assertion that "for the vast majority of common stocks, the dividend record and prospects have always been the most important factor controlling investment quality and value." But most investors would agree that when the market even begins to suspect a decrease or suspension of a company's cash dividend, that expectation is likely to weigh unfavorably on that company's common stock valuation. Therefore, many analysts look for external stock market indicators of market expectations of dividend cuts.

Extremely high dividend yields in comparison with a company's past record and forward-looking earnings is often another warning signal that investors are predicting a dividend cut. For example, the dividend yield on Singapore-listed telecoms company StarHub shares was 9.4% just prior to its fixed-to-variable dividend cut in 2019. After the announced dividend cut to a variable 80% of net profit for 2019 onwards, StarHub shares were still projected to yield about 5.6%, relatively high compared to its yield in recent years prior to the fixed dividend (which were generally about 5%). At the time, shareholder equity value was anticipated to go to zero by 2020 if the fixed dividend continued. In such cases, investors bid down the price of shares such that after the expected cut the expected total return on the shares remains adequate.

The observations of Madden (2008) support an attitude of caution with respect to very high dividend yields. Madden examined yields for the 1,963 stocks in the MSCI World Index. His company classified 865 companies out of the 1,963 companies as a "High Dividend Universe" (HDU). In the early months of the economic decline, Madden found that 78.6% of the companies in the HDU had questionable ability to maintain their dividend payments as compared with 30.7% of all the companies in the MCSI World Index. This point is supported by more recent evidence. Research

using data for the S&P 500 Index stocks from 2005 to 2015 shows that the top 5% of dividend-yielding stocks accounted for over 8% of the bottom decile of performance. This over-representation of very high dividend-yielding stocks in the bottom decile of performance is likely attributable to deteriorating corporate fundamentals resulting in non-sustainable dividends. Similarly, in 2016 analysts became concerned that many European companies' dividends were unsustainable because they were paying out the highest proportion of their earnings as dividends in decades (a 60% payout ratio) at a time when their earnings were declining. This caused some companies to change their policies and cut dividends for future reinvestment and balance sheet improvement.

SUMMARY

A company's cash dividend payment and share repurchase policies constitute its payout policy. Both entail the distribution of the company's cash to its shareholders affect the form in which shareholders receive the return on their investment. Among the points this reading has made are the following:

- Dividends can take the form of regular or irregular cash payments, stock dividends, or stock splits. Only cash dividends are payments to shareholders. Stock dividends and splits merely carve equity into smaller pieces and do not create wealth for shareholders. Reverse stock splits usually occur after a stock has dropped to a very low price and do not affect shareholder wealth.
- Regular cash dividends—unlike irregular cash dividends, stock splits, and stock dividends—represent a commitment to pay cash to stockholders on a quarterly, semiannual, or annual basis.
- There are three general theories on investor preference for dividends. The first, MM, argues that given perfect markets dividend policy is irrelevant. The second, "bird in hand" theory, contends that investors value a dollar of dividends today more than uncertain capital gains in the future. The third theory argues that in countries in which dividends are taxed at higher rates than capital gains, taxable investors prefer that companies reinvest earnings in profitable growth opportunities or repurchase shares so they receive more of the return in the form of capital gains.
- An argument for dividend irrelevance given perfect markets is that corporate dividend policy is irrelevant because shareholders can create their preferred cash flow stream by selling the company's shares ("homemade dividends").
- Dividend declarations may provide information to current and prospective shareholders regarding management's confidence in the prospects of the company. Initiating a dividend or increasing a dividend sends a positive signal, whereas cutting a dividend or omitting a dividend typically sends a negative signal. In addition, some institutional and individual shareholders see regular cash dividend payments as a measure of investment quality.
- Payment of dividends can help reduce the agency conflicts between managers and shareholders, but it also can worsen conflicts of interest between shareholders and debtholders.
- Empirically, several factors appear to influence dividend policy, including investment opportunities for the company, the volatility expected in its future earnings, financial flexibility, tax considerations, flotation costs, and contractual and legal restrictions.

- Under double taxation systems, dividends are taxed at both the corporate and shareholder level. Under tax imputation systems, a shareholder receives a tax credit on dividends for the tax paid on corporate profits. Under split-rate taxation systems, corporate profits are taxed at different rates depending on whether the profits are retained or paid out in dividends.
- Companies with outstanding debt often are restricted in the amount of dividends they can pay because of debt covenants and legal restrictions. Some institutions require that a company pay a dividend to be on their "approved" investment list. If a company funds capital expenditures by borrowing while paying earnings out in dividends, it will incur flotation costs on new debt issues.
- Using a stable dividend policy, a company tries to align its dividend growth rate to the company's long-term earnings growth rate. Dividends may increase even in years when earnings decline, and dividends will increase at a lower rate than earnings in boom years.
- A stable dividend policy can be represented by a gradual adjustment process in which the expected dividend is equal to last year's dividend per share plus [(Expected earnings × Target payout ratio − Previous dividend) × Adjustment factor].
- Using a constant dividend payout ratio policy, a company applies a target dividend payout ratio to current earnings; therefore, dividends are more volatile than with a stable dividend policy.
- Share repurchases, or buybacks, most often occur in the open market. Alternatively, tender offers occur at a fixed price or at a price range through a Dutch auction. Shareholders who do not tender increase their relative position in the company. Direct negotiations with major shareholders to get them to sell their positions are less common because they could destroy value for remaining stockholders.
- Share repurchases made with excess cash have the potential to increase earnings per share, whereas share repurchases made with borrowed funds can increase, decrease, or not affect earnings per share depending on the company's after-tax borrowing rate and earnings yield.
- A share repurchase is equivalent to the payment of a cash dividend of equal amount in its effect on total shareholders' wealth, all other things being equal.
- If the buyback market price per share is greater (less) than the book value per share, then the book value per share will decrease (increase).
- Companies can repurchase shares in lieu of increasing cash dividends. Share repurchases usually offer company management more flexibility than cash dividends by not establishing the expectation that a particular level of cash distribution will be maintained.
- Companies can pay regular cash dividends supplemented by share repurchases. In years of extraordinary increases in earnings, share repurchases can substitute for special cash dividends.
- On the one hand, share repurchases can signal that company officials think their shares are undervalued. On the other hand, share repurchases could send a negative signal that the company has few positive NPV opportunities.
- Analysts are interested in how safe a company's dividend is, specifically whether the company's earnings and, more importantly, its cash flow are sufficient to sustain the payment of the dividend.

- Early warning signs of whether a company can sustain its dividend include the dividend coverage ratio, the level of dividend yield, whether the company borrows to pay the dividend, and the company's past dividend record.

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PRACTICE PROBLEMS

1. The payment of a 10% stock dividend by a company will result in an increase in that company's:

   A. current ratio.

   B. financial leverage.

   C. contributed capital.

2. If a company's common shares trade at very low prices, that company would be *most likely* to consider the use of a:

   A. stock split.

   B. stock dividend.

   C. reverse stock split.

3. In a recent presentation, Doug Pearce made two statements about dividends:

   Statement 1 "A stock dividend will increase share price on the ex-dividend date, all other things being equal."

   Statement 2 "One practical concern with a stock split is that it will reduce the company's price-to-earnings ratio."

   Are Pearce's two statements about the effects of the stock dividend and stock split correct?

   A. No for both statements.

   B. Yes for Statement 1, and no for Statement 2.

   C. No for Statement 1, and yes for Statement 2.

4. All other things being equal, the payment of an internally financed cash dividend is *most likely* to result in:

   A. a lower current ratio.

   B. a higher current ratio.

   C. the same current ratio.

The following information relates to questions 5-9

John Ladan is an analyst in the research department of an international securities firm. Ladan is currently analyzing Yeta Products, a publicly traded global consumer goods company located in the United States. Selected data for Yeta are presented in Exhibit 1.

Exhibit 1: Selected Financial Data for Yeta Products

Most Recent Fiscal Year		Current	
Pretax income	US$280 million	Shares outstanding	100 million
Net income after tax	US$182 million	Book value per share	US$25.60
Cash flow from operations	US$235 million	Share price	US$20.00
Capital expenditures	US$175 million		
Earnings per share	US$1.82		

Yeta currently does not pay a dividend, and the company operates with a target capital structure of 40% debt and 60% equity. However, on a recent conference call, Yeta's management indicated that they are considering four payout proposals:

Proposal #1: Issue a 10% stock dividend.

Proposal #2: Repurchase US$40 million in shares using surplus cash.

Proposal #3: Repurchase US$40 million in shares by borrowing US$40 million at an after-tax cost of borrowing of 8.50%.

Proposal #4: Initiate a regular cash dividend.

5. The implementation of Proposal #1 would generally lead to shareholders:

   A. having to pay tax on the dividend received.

   B. experiencing a decrease in the total cost basis of their shares.

   C. having the same proportionate ownership as before implementation.

6. If Yeta's management implemented Proposal #2 at the current share price shown in Exhibit 1, Yeta's book value per share after implementation would be *closest* to:

   A. US$25.20.

   B. US$25.71.

   C. US$26.12.

7. Based on Exhibit 1, if Yeta's management implemented Proposal #3 at the current share price, earnings per share would:

   A. decrease.

   B. remain unchanged.

   C. increase.

8. Based on Yeta's target capital structure, Proposal #4 will *most likely:*

   A. increase the default risk of Yeta's debt.

   B. increase the agency conflict between Yeta's shareholders and managers.

   C. decrease the agency conflict between Yeta's shareholders and bondholders.

9. The implementation of Proposal #4 would *most likely* signal to Ladan and other

investors that future earnings growth can be expected to:

A. decrease.

B. remain unchanged.

C. increase.

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10. Match the phrases in Column A with the corresponding dividend theory in Column B. Note that you may use the answers in Column B more than once.

Column A	Column B
1. Bird in the hand	a) Dividend policy matters
2. Homemade dividends	b) Dividend policy is irrelevant
3. High tax rates on dividends	

11. Which of the following assumptions is *not* required for Miller and Modigliani's (MM) dividend theory?

A. Shareholders have no transaction costs when buying and selling shares.

B. There are no taxes.

C. Investors prefer dividends over uncertain capital gains.

12. Sophie Chan owns 100,000 shares of PAT Company. PAT is selling for €40 per share, so Chan's investment is worth €4,000,000. Chan reinvests the gross amount of all dividends received to purchase additional shares. Assume that the clientele for PAT shares consists of tax-exempt investors. If PAT pays a €1.50 dividend, Chan's new share ownership after reinvesting dividends at the ex-dividend price is *most* likely to be closest to:

A. 103,600.

B. 103,750.

C. 103,900.

13. Which of the following is *most* likely to signal negative information concerning a company?

A. Share repurchase.

B. Decrease in the quarterly dividend rate.

C. A two-for-one stock split.

14. WL Corporation is located in a jurisdiction that has a 40% corporate tax rate on pretax income and a 30% personal tax rate on dividends. WL distributes all its after-tax income to shareholders. What is the effective tax rate on WL pretax income distributed in dividends?

A. 42%.

B. 58%.

C. 70%.

15. Which of the following factors is *least likely* to be associated with a company having a low dividend payout ratio?

A. High flotation costs on new equity issues.

B. High tax rates on dividends.

C. Low growth prospects.

16. The dividend policy of Berkshire Gardens Inc. can be represented by a gradual adjustment to a target dividend payout ratio. Last year Berkshire had earnings per share of US$3.00 and paid a dividend of US$0.60 a share. This year it estimates earnings per share will be US$4.00. Find its dividend per share for this year if it has a 25% target payout ratio and uses a five-year period to adjust its dividend.

A. US$0.68.

B. US$0.80.

C. US$0.85.

17. Beta Corporation is a manufacturer of inflatable furniture. Which of the following scenarios best reflects a stable dividend policy for Beta?

A. Maintaining a constant dividend payout ratio of 40–50%.

B. Maintaining the dividend at US$1.00 a share for several years given no change in Beta's long-term prospects.

C. Increasing the dividend 5% a year over several years to reflect the two years in which Beta recognized mark-to-market gains on derivatives positions.

18. A company has 1 million shares outstanding and earnings are £2 million. The company decides to use £10 million in surplus cash to repurchase shares in the open market. The company's shares are trading at £50 per share. If the company uses the entire £10 million of surplus cash to repurchase shares at the market price, the company's earnings per share will be *closest* to:

A. £2.00.

B. £2.30.

C. £2.50.

19. Devon Ltd. common shares sell at US$40 a share, and their estimated price-to-earnings ratio (P/E) is 32. If Devon borrows funds to repurchase shares at its after-tax cost of debt of 5%, its EPS is *most likely* to:

A. increase.

B. decrease.

C. remain the same.

20. A company can borrow funds at an after-tax cost of 4.5%. The company's stock price is US$40 per share, earnings per share is US$2.00, and the company has 15 million shares outstanding. If the company borrows just enough to repurchase 2 million shares of stock at the prevailing market price, that company's earnings

per share is *most likely* to:

A. increase.

B. decrease.

C. remain the same.

21. Crozet Corporation plans to borrow just enough money to repurchase 100,000 shares. The following information relates to the share repurchase:

Shares outstanding before buyback	3.1 million
Earnings per share before buyback	US$4.00
Share price at time of buyback	US$50
After-tax cost of borrowing	6%

Crozet's earnings per share after the buyback will be *closest* to:

A. US$4.03.

B. US$4.10.

C. US$4.23.

22. A company with 20 million shares outstanding decides to repurchase 2 million shares at the prevailing market price of €30 per share. At the time of the buyback, the company reports total assets of €850 million and total liabilities of €250 million. As a result of the buyback, that company's book value per share will *most likely*:

A. increase.

B. decrease.

C. remain the same.

23. An analyst gathered the following information about a company:

Number of shares outstanding	10 million
Earnings per share	US$2.00
P/E	20
Book value per share	US$30

If the company repurchases 1 million shares at the prevailing market price, the resulting book value per share will be *closest* to:

A. US$26.

B. US$27.

C. US$29.

24. If a company's objective is to support its stock price in the event of a market downturn, it would be advised to authorize:

A. an open market share repurchase plan to be executed over the next five years.

B. a tender offer share repurchase at a fixed price effective in 30 days.

C. a Dutch auction tender offer effective in 30 days.

25. A company has positive free cash flow and is considering whether to use the entire amount of that free cash flow to pay a special cash dividend or to repurchase shares at the prevailing market price. Shareholders' wealth under the two options will be equivalent unless the:

A. company's book value per share is less than the prevailing market price.

B. company's book value per share is greater than the prevailing market price.

C. tax consequences and/or information content for each alternative is different.

26. Assume that a company is based in a country that has no taxes on dividends or capital gains. The company is considering either paying a special dividend or repurchasing its own shares. Shareholders of the company would have:

A. greater wealth if the company paid a special cash dividend.

B. greater wealth if the company repurchased its shares.

C. the same wealth under either a cash dividend or share repurchase program.

27. Investors may prefer companies that repurchase their shares instead of paying a cash dividend when:

A. capital gains are taxed at lower rates than dividends.

B. capital gains are taxed at the same rate as dividends.

C. the company needs more equity to finance capital expenditures.

The following information relates to questions 28-29

Janet Wu is treasurer of Wilson Chemical Company, a manufacturer of specialty chemicals used in industrial manufacturing and increasingly in technology applications. Wilson Chemical is selling one of its older divisions for US$70 million cash. Wu is considering whether to recommend a special dividend of US$70 million or a repurchase of 2 million shares of Wilson common stock in the open market. She is reviewing some possible effects of the buyback with the company's financial analyst. Wilson has a long-term record of gradually increasing earnings and dividends.

28. Wilson's share buyback could be a signal that the company:

A. is decreasing its financial leverage.

B. views its shares as undervalued in the marketplace.

C. has more investment opportunities than it could fund internally.

29. The most likely tax environment in which Wilson Chemical's shareholders would prefer that Wilson repurchase its shares (share buybacks) instead of paying divi-

dends is one in which:

A. the tax rate on capital gains and dividends is the same.

B. capital gains tax rates are higher than dividend income tax rates.

C. capital gains tax rates are lower than dividend income tax rates.

SOLUTIONS

1. C is correct. A stock dividend is accounted for as a transfer of retained earnings to contributed capital.

2. C is correct. A reverse stock split would increase the price per share of the stock to a higher, more marketable range that could possibly increase the number of investors who would consider buying the stock.

3. A is correct. Both statements are incorrect. A stock dividend will decrease the price per share, all other things being equal. A stock split will reduce the price and earnings per share proportionately, leaving the price-to-earnings ratio the same.

4. A is correct. By reducing corporate cash, a cash dividend reduces the current ratio, whereas a stock dividend (whatever the size) has no effect on the current ratio.

5. C is correct. The implementation of Proposal #1, a stock dividend, would not affect a shareholder's proportionate ownership because all shareholders would receive the same proportionate increase in shares. Stock dividends, which are generally not taxable to shareholders, do not impact an investor's total cost basis (they merely reduce the cost basis per share).

   A is incorrect because stock dividends are generally not taxable to shareholders. A stock dividend merely divides the "pie" (the market value of shareholders' equity) into smaller pieces.

   B is incorrect because an investor's total cost basis will not be affected by a stock dividend; a stock dividend merely reduces the cost basis per share.

6. B is correct. If Yeta implemented Proposal #2, a repurchase of US$40 million in shares, the resulting book value per share (BVPS) would be US$25.71, calculated as follows:

   1. Yeta has a current BVPS of US$25.60; therefore, total book value of equity is US$2,560 million (= US$25.60 × 100,000,000 shares).

   2. The number of shares Yeta would repurchase is US$40 million/US$20.00 per share = 2 million shares.

   3. Yeta shareholders' book value of equity after the buyback would be US$2,520 million (= US$2,560 million – US$40 million).

   4. The number of shares after the buyback would be 98 million (= 100 million – 2 million).

   5. The BVPS after the buyback would be US$2,520 million/98 million = US$25.71.

   A is incorrect because US$25.20 incorrectly uses 100 million shares instead of 98 million shares in calculating BVPS after the buyback: US$2,520 million/100 million = US$25.20.

   C is incorrect because US$26.12 incorrectly uses US$2,560 million (current book value) instead of US$2,520 million as the book value of equity in calculating BVPS after the buyback. The BVPS after the buyback is incorrectly calculated as US$2,560 million/98 million = US$26.12.

7. C is correct. In the case of external funding, a company's earnings per share will increase if the stock's earnings yield, which is the ratio of earnings per share to

share price, exceeds the after-tax cost of borrowing. Yeta's earnings yield is 9.10% (= US$1.82/US$20.00), which exceeds the after-tax cost of borrowing of 8.50%.

A is incorrect because EPS will increase (not decrease) if the stock's earnings yield (= US$1.82/US$20.00) exceeds the after-tax cost of borrowing. Yeta's earnings yield of 9.10% exceeds the after-tax cost of borrowing of 8.50%.

B is incorrect because EPS will increase (not remain unchanged) if the stock's earnings yield (= US$1.82/US$20.00) exceeds the after-tax cost of borrowing. Yeta's earnings yield of 9.10% exceeds the after-tax cost of borrowing of 8.50%.

8. A is correct. Yeta is financed by both debt and equity; therefore, paying dividends can increase the agency conflict between shareholders and bondholders. The payment of dividends reduces the cash cushion available for the disbursement of fixed required payments to bondholders. All else equal, dividends increase the default risk of debt.

   B is incorrect because the agency conflict between shareholders and managers would decrease (not increase) with the payment of dividends. Paying out free cash flow to equity in dividends would constrain managers in their ability to overinvest by taking on negative net present value (NPV) projects.

   C is incorrect because paying dividends can increase (not decrease) the agency conflict between shareholders and bondholders. The payment of dividends would reduce the cash cushion available to Yeta for the disbursement of fixed required payments to bondholders. The payment of dividends transfers wealth from bondholders to shareholders and increases the default risk of debt.

9. C is correct. Dividend initiations convey positive information and are associated with future earnings growth, whereas dividend omissions or reductions convey negative information and are associated with future earnings problems.

   A is incorrect because dividend initiations convey positive information and are associated with an expected increase (not a decrease) in future earnings growth. Dividend omissions or reductions convey negative information and are associated with future earnings problems.

   B is incorrect because dividend initiations convey positive information and are associated with an expectation that future earnings growth will increase (not remain unchanged). In contrast, dividend omissions or reductions convey negative information and are associated with future earnings problems.

10. The appropriate matches are as follows:

Column A	Column B
1. Bird in the hand	a) Dividend policy matters
2. Homemade dividends	b) Dividend policy is irrelevant
3. High tax rates on dividends	a) Dividend policy matters

11. C is correct. The MM dividend theory assumes no taxes or transaction costs, but it does not assume investors have a preference for dividends over capital gains.

12. C is correct. Because the clientele for PAT investors has the same tax rate (zero) for dividends and capital gains, the ex-dividend stock price of PAT should decline by the amount of the dividend to €40 – €1.50 = €38.50. Chan will purchase €150,000/€38.50 = 3,896 additional shares. This increases her total shares owned to 103,896. Chan's new share ownership is closest to 103,900.

13. B is correct. A decrease in the quarterly dividend rate is likely to signal negative information. A decrease is typically understood as signaling poor future business

prospects.

14. B is correct. The effective tax rate can be computed as 1 minus the fraction of 1 unit of earnings that investors retain after all taxes, or 1 – (1 – 0.40)(1 – 0.30) = 0.58 or 58% effective tax rate. Another way to obtain the solution: Corporate taxes = 1.00 × 0.40 = 0.40 and Personal taxes = 0.60 in dividends × 0.30 = 0.18, so Total tax = 0.40 + 0.18 = 0.58, or 58% effective rate.

15. C is correct. With low growth prospects, a company would typically have a high payout ratio, returning funds to its shareholders rather than retaining funds.

16. A is correct. The estimated dividend per share is US$0.68.

    Previous DPS = US$0.60

    Expected EPS = US$4

    Target payout ratio = 0.25

    Five-year adjustment factor = 1/5 = 0.2

    Expected dividend = Previous dividend + (Expected earnings × Target payout ratio − Previous dividend) × Adjustment factor

    = US$0.60 + [(US$4.00 × 0.25 − US$0.60) × 0.2]

    = US$0.60 + US$0.08

    = US$0.68

17. B is correct. Choice A is consistent with a constant dividend target payout ratio policy. Choice C is not correct because the earnings increases described are not sustainable long term.

18. C is correct. At the current market price, the company can repurchase 200,000 shares (£10 million/£50 = 200,000 shares). The company would have 800,000 shares outstanding after the repurchase (1 million shares – 200,000 shares = 800,000 shares).

    EPS before the buyback is £2.00 (£2 million/1 million shares = £2.00). Total earnings after the buyback are the same because the company uses surplus (nonearning) cash to purchase the shares, but the number of shares outstanding is reduced to 800,000. EPS increases to £2.50 (£2 million/ 800,000 shares = £2.50).

19. B is correct. If the P/E is 32, the earnings-to-price ratio (earnings yield or E/P) is 1/32 = 3.125%. When the cost of capital is greater than the earnings yield, earnings dilution will result from the buyback.

20. A is correct. The company's earnings yield (E/P) is US$2/US$40 = 0.05. When the earnings yield is greater than the after-tax cost of borrowed funds, EPS will increase if shares are repurchased using borrowed funds.

21. A is correct.

    Total earnings before buyback: US$4.00 × 3,100,000 shares = US$12,400,000

    Total amount of borrowing: US$50 × 100,000 shares = US$5,000,000

    After-tax cost of borrowing the amount of funds needed: US$5,000,000 × 0.06 = US$300,000

Number of shares outstanding after buyback: 3,100,000 – 100,000 = 3,000,000

EPS after buyback: (US$12,400,000 – US$300,000)/3,000,000 shares = US$4.03

The P/E before the buyback is US$50/US$4 = 12.5; thus, the E/P is 8%. The after-tax cost of debt is 6%; therefore, EPS will increase.

22. C is correct. The company's book value before the buyback is €850 million in assets – €250 million in liabilities = €600 million. Book value per share is €600 million/20 million = €30 per share. The buyback will reduce equity by 2 million shares at the prevailing market price of €30 per share. The book value of equity will be reduced to €600 million – €60 million = €540 million, and the number of shares will be reduced to 18 million; €540 million/18 million = €30 book value per share. If the prevailing market price is equal to the book value per share at the time of the buyback, book value per share is unchanged.

23. C is correct. The prevailing market price is US$2.00(20) = US$40.00 per share; thus, the buyback would reduce equity by US$40 million. Book value of equity before the buyback is US$300 million. Book value of equity after the buyback would be US$300 million – US$40 million = US$260 million. The number of shares outstanding after the buyback would be 9 million. Thus, book value per share after the buyback would be US$260 million/9 million = US$28.89 ≈ US$29.

24. A is correct. Of the three methods, only an authorized open market share repurchase plan allows the company the flexibility to time share repurchases to coincide with share price declines.

25. C is correct. For the two options to be equivalent with respect to shareholders' wealth, the amount of cash distributed, the taxation, and the information content must be the same for both options.

26. C is correct. When there are no taxes, there are no tax differences between dividends and capital gains. All other things being equal, the effect on shareholder wealth of a dividend and a share repurchase should be the same.

27. A is correct. When capital gains are taxed at lower rates than dividends, investors may prefer companies that return cash to shareholders through share repurchases rather than dividends.

28. B is correct. Management sometimes undertakes share repurchases when it views shares as being undervalued in the marketplace.

29. C is correct. Shareholders would prefer that the company repurchase its shares instead of paying dividends when the tax rate on capital gains is lower than the tax rate on dividends.

LEARNING MODULE

2

Environmental, Social, and Governance (ESG) Considerations in Investment Analysis

by Deborah S. Kidd, CFA, Young Lee, CFA, JD, and Johan Vanderlugt.

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LEARNING OUTCOMES

Mastery	*The candidate should be able to:*
☐	describe global variations in ownership structures and the possible effects of these variations on corporate governance policies and practices
☐	evaluate the effectiveness of a company's corporate governance policies and practices
☐	describe how ESG-related risk exposures and investment opportunities may be identified and evaluated
☐	evaluate ESG risk exposures and investment opportunities related to a company

INTRODUCTION

1

Environmental, social, and governance (ESG) considerations are increasingly being integrated into investment analysis. Evaluating how ESG factors potentially affect a company may provide analysts with a broader perspective on the risks and investment opportunities of a company's securities. Although corporate governance has long been recognized as having a significant impact on a company's long-term performance, investors have become increasingly concerned with environmental and social factors and how companies manage their resources and risk exposures that relate to such factors. Mismanagement of these resources has led to a number of high-profile corporate events that have negatively affected security prices. Increasingly stringent regulatory environments, potentially finite supplies of natural resources, and global trends toward energy conservation and waste reduction have led many investors to place greater emphasis on the management of environmental risks. Similarly, such issues as worker health and safety policies, community impact, and marketing practices have increased the visibility of how a company manages its social capital.

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This reading provides an overview of ESG considerations in investment analysis. Section 2 provides an overview of the global variations in corporate ownership structures, as well as how these ownership structures may affect corporate governance outcomes. In Section 3, we discuss company-specific factors that should be considered when evaluating corporate governance in the investment process. Section 4 discusses the identification of ESG-related risks and opportunities that are relevant to security analysis. Section 5 demonstrates the evaluation of ESG-related risks and opportunities through several examples. The reading concludes with a summary of the key points discussed.

2 OWNERSHIP STRUCTURES AND THEIR EFFECTS ON CORPORATE GOVERNANCE

☐ describe global variations in ownership structures and the possible effects of these variations on corporate governance policies and practices

The global corporate governance landscape comprises a vast range of ownership structures that reflect unique economic, political, social, legal, and other forces in each country and/or region. Within any of these distinct ownership structures, one may find a variety of complex relationships involving shareholders and other stakeholders who have an interest in the company. Those other stakeholders include creditors, managers (executives), employees, directors, customers, suppliers, governments, and regulators. An understanding of the variation of ownership structures, the conflicts that arise within these structures, types of influential shareholders, and the effects of ownership structure on corporate governance are important considerations for analyzing corporate governance in the investment process.

Dispersed vs. Concentrated Ownership

Corporate ownership structures are generally classified as *dispersed*, *concentrated*, or a hybrid of the two. **Dispersed ownership** reflects the existence of many shareholders, none of which has the ability to individually exercise control over the corporation. In contrast, **concentrated ownership** reflects an individual shareholder or a group (called *controlling shareholders*) with the ability to exercise control over the corporation. In this context, a group is typically a family, another company (or companies), or a sovereign entity.

On a global basis, concentrated ownership structures are considerably more common than dispersed ownership structures. A global corporate governance report by the Organisation for Economic Co-operation and Development (OECD)[1] noted that 38 out of 47 jurisdictions analyzed have predominantly concentrated ownership structures. Among the other nine jurisdictions, four were characterized as having dispersed ownership structures (Australia, Ireland, the United Kingdom, and the United States) and five were characterized as having "hybrid" corporate ownership structures (Canada, Germany, Japan, the Netherlands, and Switzerland). The OECD's classification of corporate ownership structure by jurisdiction is shown in Exhibit 1.

1 OECD (2017).

Exhibit 1: Corporate Ownership Classifications

Jurisdictions with Concentrated Ownership	
Austria, Belgium, Brazil, Chile, China, Colombia, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, India, Indonesia, Israel, Italy, Latvia, Mexico, New Zealand, Norway, Poland, Portugal, Russia, Singapore, Slovenia, South Africa, South Korea, Spain, Sweden, Turkey, United Arab Emirates	State ownership is characteristic of certain countries, such as China, Norway, and Sweden. In other countries, including Brazil, Mexico, Portugal, and South Korea, families are the predominant shareholders. Company groups are prevalent in a number of additional countries, such as India and Russia.
Jurisdictions with Dispersed Ownership	
Australia, Ireland, United Kingdom, United States	Among the largest companies in Australia, the majority of shares are held (albeit dispersed) by financial institutions. In Ireland, ownership shares tend to be widely dispersed, although there are a few family-controlled companies. Among UK companies, few have major shareholders owning 25% or more of shares. In the United States, ownership of public companies is generally characterized by dispersed shareholdings; listed companies are rarely under the control of a major shareholder.
Hybrid Jurisdictions	
Canada, Germany, Japan, Netherlands, Switzerland	In Canada, among the largest listed firms, a meaningful minority have controlling shareholders. In Germany, a significant number of companies are under "tight control," but in many cases shares are broadly distributed (especially for listed companies). In Japan, a small minority of listed companies have a shareholder that owns a majority of shares. The Netherlands has a more dispersed ownership structure than most continental European countries; however, when accounting for "trust offices," ownership is somewhat more concentrated. In Switzerland, the largest listed companies have more dispersed ownership than medium-sized and smaller companies.

Source: OECD (2017).

The degree of share ownership alone may not necessarily reflect whether the control of a company is dispersed or concentrated. This is true because controlling shareholders may be either **majority shareholders** (i.e., own more than 50% of a corporation's shares) or **minority shareholders** (i.e., own less than 50% of shares). In certain ownership structures, shareholders may have disproportionately high control of a corporation relative to their ownership stakes as a result of horizontal and/or vertical ownership arrangements. **Horizontal ownership** involves companies with mutual business interests (e.g., key customers or suppliers) that have cross-holding share arrangements with each other. This structure can help facilitate strategic alliances and foster long-term relationships among such companies. **Vertical ownership** (or pyramid ownership) involves a company or group that has a controlling interest in two or more holding companies, which in turn have controlling interests in various operating companies.

The existence of *dual-class* (or multiple-class) shares can also serve to disconnect the degree of share ownership from actual control. **Dual-class shares** grant one share class superior or sole voting rights, whereas the other share class has inferior or no voting rights. When used in connection with vertical ownership arrangements, the company or group at the top of the pyramid can issue to itself all or a disproportionately high number of shares with superior voting rights and thus maintain control of the operating companies with relatively fewer total shares of a company owned.

Conflicts within Different Ownership Structures

The type of corporate ownership structure affects corporate governance policies and practices because of the potentially different set of conflicts that may exist between shareholders and managers, as well as among shareholders themselves.

The combination of *dispersed* ownership and *dispersed* voting power is generally associated with shareholders who lack the power to exercise control over managers. These shareholders are referred to as *weak shareholders*, and such managers are referred to as *strong managers*. Under this combination, conflict between the shareholders and managers of a corporation may be significant. Shareholders are interested in maximizing shareholder value. There is a risk, however, that managers will seek to use a company's resources to pursue their own interests. In corporate governance, this conflict is known as a *principal–agent* problem. This problem can be mitigated if controlling shareholders are present because they may be able to control the board of directors (and, in turn, the appointment of managers) and have the incentive to monitor management.

The combination of *concentrated* ownership and *concentrated* voting power often results in controlling shareholders maintaining a position of power over both managers and minority shareholders; these controlling shareholders are referred to as *strong shareholders*, and such managers are referred to as *weak managers*. In this scenario, controlling shareholders can effectively monitor management because they are able to control the board of directors and, in turn, the appointment of managers. With concentrated ownership and concentrated voting power, however, controlling owners may also be able to allocate company resources to their own benefit at the expense of minority owners. This conflict is known as a *principal–principal* problem.

The combination of *dispersed* ownership and *concentrated* voting power generally leads to the principal–principal problem as well. The one difference, however, is that the strong controlling shareholders do not own a majority of the shares of a company. In this scenario, controlling shareholders with less than majority ownership can exert control over other minority owners through certain mechanisms, such as dual-class share structures and pyramid structures, and can also monitor management owing to their outsized voting power.

Finally, the combination of *concentrated* ownership and *dispersed* voting power arises when there are legal restrictions on the voting rights of large share positions, known as **voting caps**. A number of sovereign governments have imposed voting caps to deter foreign investors from obtaining controlling ownership positions in strategically important local companies.

EXAMPLE 1

Conflicts between Shareholders and Managers

1. The managers of Company A, a widely held conglomerate, collectively own approximately 30% of the outstanding shares. No other shareholder owns more than a 1% share. Each ownership share has equivalent voting rights. Describe the potential conflict between the shareholders and managers of Company A given its ownership structure and voting rights.

Solution:

Company A has dispersed ownership and dispersed voting power. In this ownership structure, shareholders do not appear to have the ability to control or monitor managers; that is, there are weak shareholders and strong managers. In this case, a risk exists that managers may seek to use company

resources to prioritize their own interests rather than to maximize shareholder value. This type of conflict is known as the *principal–agent* problem.

Types of Influential Shareholders

In different parts of the world, the types of corporate shareholders that have a significant influence on corporate governance vary. Each of these shareholder types possesses its own unique set of motivations, interests, and agendas. By identifying these shareholders, an investment analyst is in a position to further assess corporate governance risks.

Banks

In several regions, notably in Europe and Asia, banks often have considerable control over corporations with which they have a lending relationship as well as an equity interest. A conflict of interest could arise if banks have loan exposures to a corporation in addition to their equity investment. For example, if a bank has both a lending relationship with and an equity interest in a corporation, it could seek to influence the corporation to take out large loans, and perhaps on less favorable terms, to the potential detriment of other shareholders. In this situation, appropriate corporate governance controls could ensure that banks that are both creditors and investors appropriately balance their interests as lenders against their interests as shareholders.

Families

Family ownership is the predominant form of corporate structure in some parts of the world, notably Latin America and, to a slightly lesser extent, Asia and Europe. In some cases, also commonly in Latin America, individuals serve on the board of directors of multiple corporations. This situation, known as **interlocking directorates**, typically results in the same family or the same member of a corporate group controlling several corporations. A benefit of family control is lower risks associated with principal–agent problems as a result of families having concentrated ownership and management responsibility. Conversely, drawbacks of family ownership may include poor transparency, lack of management accountability, modest consideration for minority shareholder rights, and difficulty in attracting quality talent for management positions.

State-Owned Enterprises

State-owned enterprises (SOEs) often exist in corporate sectors that are strategically important to a sovereign government, have minimum initial or ongoing capital requirements that are beyond the private sector's funding ability, or provide certain products or services (e.g., power generation or health services) that the state believes should be provided at a certain price or minimum standard. Listed SOEs are partially owned by sovereign governments but also have shares traded on public stock markets. This structure is called a *mixed-ownership model*. This model tends to have lower market scrutiny of management than that of corporate ownership models, which have implicit or explicit state guarantees to prevent corporate bankruptcy. In some cases, SOEs may pursue policies that enhance social or public policy considerations at the expense of maximizing shareholder value.

Institutional Investors

In many countries, institutional investors—typically mutual funds, pension funds, insurance companies, and hedge funds—collectively represent a significant proportion of equity market ownership. Because these investors tend to have considerable

resources and market expertise, they can use informed judgment in exercising their shareholder rights. In markets with widely dispersed ownership, institutional investors do not typically control a large enough ownership position to qualify as a controlling shareholder. Institutional investors can promote good corporate governance, however, by holding a company's board and management accountable when the board or management does not appear to be acting in the best interests of shareholders.

Group Companies

Some ownership structures, such as the previously mentioned horizontal and vertical ownership structures, may result in shareholders having disproportionately high control relative to their ownership stakes. Cross-holding share arrangements and long-term relationships between these group companies may restrict the potential for a transfer of share ownership—as well as create a potential obstacle for outsiders to purchase a significant portion of shares in companies. Without appropriate corporate governance policies/procedures or regulatory protections, there is a greater risk that corporations controlled by groups engage in related-party transactions at the expense of minority shareholders. Examples of group companies are Samsung (South Korea), Sanwa (Japan), and Grupo Carso (Mexico).

Private Equity Firms

Private equity firms, notably those involved in venture capital and leveraged buyouts, are strategic owners that invest in privately owned companies or in public companies with the intent to take them private. Venture capital firms invest in the early stages of a company and provide oversight of portfolio companies. Similarly, leveraged buyout (LBO) firms typically have majority control in mature companies. The involvement of venture capital and LBO firms in the management of corporations may bring important changes to companies' corporate governance, such as the development of corporate codes and implementation of performance-based manager compensation.

Foreign Investors

Foreign investors, particularly when investing in emerging market countries, can have a significant influence on local companies when they own more shares than domestic investors own. Foreign investors from countries that have more stringent standards may demand higher levels of transparency and accountability. If a local company chooses to cross-list its shares in another country with greater transparency requirements and investor protections, local minority shareholders may benefit from the arrangement.

Managers and Board Directors

When managers and board directors are also shareholders of a company, they are known as **insiders**. As their ownership positions increase, insiders are more likely to dedicate company resources toward long-term profitability because their economic interests in the company have become more aligned with the interests of external shareholders. Large ownership positions, however, may also provide insiders with increased power and an accompanying desire to protect their own interests at the expense of other shareholders.

Effects of Ownership Structure on Corporate Governance

This subsection highlights the effects of ownership structures on corporate governance policies and practices. Key considerations include board independence; board structure; special voting arrangements; corporate governance codes, laws, and listing requirements; and stewardship codes.

Director Independence

Independent board directors (or independent board members) are defined as those with no material relationship with the company with regard to employment, ownership, or remuneration. The percentage of independent board directors tends to be higher in jurisdictions with generally dispersed ownership structures relative to those countries with generally concentrated ownership structures. Independent directors originated in dispersed ownership jurisdictions as a means to strengthen the board's monitoring role over managers. The proportion of independent directors on boards has increased over time amid regulatory responses to corporate scandals (e.g., the Enron Corporation scandal in the early 2000s).

Independent directors generally serve a narrower role in concentrated ownership structures than in dispersed ownership structures. For example, the United States requires that some committees (such as the audit, nomination, and compensation committees) be composed entirely of independent directors. Conversely, in most jurisdictions with concentrated ownership structures, nomination and remuneration committees are not mandatory; when these committees do exist, jurisdictions typically recommend that the committees be wholly or largely composed of independent directors. In short, the principal–agent problem is generally less of a concern in a concentrated ownership structure than in a dispersed ownership structure.

Almost all OECD countries have introduced a requirement or recommendation for the level of independent directors serving on boards. These requirements and recommendations vary by jurisdiction, however. Some countries impose or recommend a minimum number of independent directors (typically ranging from one to three), whereas others impose or recommend a minimum ratio of independent directors (typically ranging from 20% to 50% or greater).

Board Structures

A corporation's board of directors is typically structured as either one tier or two tier. A **one-tier board** structure consists of a single board of directors, composed of executive (internal) and non-executive (external) directors. A **two-tier board** structure consists of a supervisory board that oversees a management board. A one-tier board is the most common structure, but a number of jurisdictions mandate a two-tier board structure (e.g., Argentina, Germany, and Russia), whereas other jurisdictions offer the choice of a one-tier or two-tier board (e.g., Brazil and France). The supervisory board of a two-tier board can serve as a control function through activities such as inspecting the corporation's books and records, reviewing the annual report, overseeing the work of external auditors, analyzing information provided by the management board, and setting or influencing management compensation. In certain countries, such as Germany, the supervisory boards comprise representatives from key stakeholders, such as banks and labor or other groups.

Special Voting Arrangements

Several jurisdictions have special voting arrangements to improve the position of minority shareholders. For example, Brazil, India, Portugal, Turkey, Italy, Israel, and the United Kingdom have special arrangements that facilitate engagement of minority shareholders in board nomination and election processes. When a UK company has a controlling shareholder, a condition for obtaining a "premium listing" (i.e., meeting the United Kingdom's highest standards of regulation and corporate governance) on the London Stock Exchange is that independent directors must be separately approved by both the entire shareholder base and non-controlling shareholders.

Corporate Governance Codes, Laws, and Listing Requirements

Many countries have adopted national corporate governance codes in which companies disclose their adoption of recommended corporate governance practices or explain why they have not done so. In some jurisdictions, companies are required to go beyond this "comply or explain" approach. In Japan, for example, companies with no outside directors must justify why appointing outside directors is not appropriate. Some jurisdictions do not have national corporate governance codes but make use of company law or regulation (e.g., Chile) or stock exchange listing requirements (e.g., India) to achieve similar objectives.

Stewardship Codes

Many countries have introduced voluntary codes, known as *stewardship codes*, that encourage investors to exercise their legal rights and increase their level of engagement in corporate governance. In some cases, stewardship codes are not entirely voluntary. As an example, the UK Stewardship Code includes a duty for institutional investors to monitor the companies in which they invest and requires that UK asset managers investing in the shares of UK companies publish a "comply or explain" statement of commitment to the UK Stewardship Code.

3 EVALUATING CORPORATE GOVERNANCE POLICIES AND PROCEDURES

☐ evaluate the effectiveness of a company's corporate governance policies and practices

Effective corporate governance is critical for a company's reputation and competitiveness. Benefits of effective corporate governance may include higher profitability, growth in return on equity (or other return metrics), better access to credit, higher and sustainable dividends, favorable long-term share performance, and a lower cost of capital. In contrast, companies with ineffective corporate governance may experience reputational damage, reduced competitiveness, potential share price weakness/volatility, reduced profitability, and a higher cost of capital.

Corporate governance factors are often difficult to quantify. However, an understanding of these factors and their impact on governance policies and procedures can be important for investors to consider. Understanding the disclosed corporate governance policies and procedures is a key starting point for investors. Regular dialogue and engagement efforts with companies can help investors better understand corporate governance policies and procedures. In some situations, shareholder activism can be used to attempt to compel a company to act in a desired manner. **Shareholder activism** refers to strategies used by shareholders to attempt to compel a company to act in a desired manner.

The quality of corporate governance is typically reflected in a company's behavior in the market and toward its stakeholders. To that end, an evaluation of a corporation's board of directors is a starting point for investors. We discuss several of the considerations relating to boards of directors in this section. In addition, a company's policies regarding business ethics, bribery and corruption, whistleblower protection, and related-party transactions can help analysts evaluate a company's corporate

governance. In practice, analysts typically adjust the risk premium (cost of capital) or credit spread of a company to reflect their assessment of corporate governance considerations.

Board Policies and Practices

A starting point for evaluating a board's effectiveness is its policies and practices. An oversight role is one aspect of a board's effectiveness—for example, whether the board is high-performing or dysfunctional. Each capital market is subject to different corporate governance issues, depending on its predominant ownership structure, history, legal environment, culture, and industry diversity. For example, boards of companies with concentrated family ownership structures and concentrated voting power may engage in related-party transactions that benefit family members or affiliates at the expense of outside shareholders.

Board of Directors Structure

Generally, when evaluating board structure, investors consider whether the organization and structure of the board—whether it is a one-tier or two-tier structure—provide sufficient oversight, representation, and accountability to shareholders. A related topic is "CEO duality," whereby the chief executive officer (CEO) also serves as chairperson of the board. CEO duality may raise concerns that the monitoring and oversight role of the board may be compromised relative to independent chairperson and CEO roles. When the chairperson is not independent or the role is combined, a company may appoint a lead independent director to help protect investor interests.

Board Independence

The independence of the directors, which we discussed previously, is a relevant consideration for investors. The absence or presence of a minority of independent directors is a negative aspect of corporate governance. Without independent directors, the potential exists for management to act in a self-serving manner. Consequently, a lack of independent directors on a board may increase investors' perception of the corporation's risk.

Board Committees

The number of board committees and how the committees operate are relevant considerations in an investor's analysis of governance. Committees vary by corporation and industry but generally include audit, governance, remuneration (or compensation), nomination, and risk and compliance committees. When evaluating a company's board committees, investors assess whether there are sufficiently independent committees that focus on key governance concerns, such as audit, compensation, and the selection of directors. The presence of non-independent committee members or executive directors may prompt the consideration of potential conflicts of interest or biases, such as those relating to compensation decisions (remuneration committee), management selection (nomination committee), and the integrity of financial reporting (audit committee).

Board Skills and Experience

The underlying skill set and experience of board directors are important investor considerations. A board with concentrated skills and experience may lack sufficient expertise to govern, as may a board with diverse skills and expertise that are not directly related to the company's core operations. In certain sectors/industries that rely on natural resources or face potentially large ESG risks, board members typically have expertise in environmental, climate, or social issues.

An issue related to skills and experience is board tenure. According to many corporate governance codes, a board director's tenure is considered long if it exceeds 10 years. Long tenure of a board member could be viewed positively or negatively. On the positive side, a board member with a long tenure may have a comprehensive understanding of how the corporation's business operates, as well as how effective company management has been during the director's tenure. On the negative side, long tenure may affect the independence of board members (i.e., they could be too closely aligned with management) or may result in directors being less willing to embrace changes in the corporation's business.

Board Composition

Board composition primarily reflects the number and diversity of directors, including their professional, cultural, and geographical background, as well as gender, age, and tenure. Boards with too many members or that lack diversity may govern less effectively than boards that are smaller or more diverse. For example, a board with long-tenured board members could become controlling, self-serving, or resistant to the introduction of new practices or policies that may benefit stakeholders.

Other Considerations in Board Evaluation

Board evaluation is necessary to maintain a company's competitive position and to meet the expectations of investors. Dimensions of the board evaluation process may include who evaluates the board, what should be evaluated, to whom the evaluation is targeted, and how the evaluation will be accomplished.

A board evaluation can be performed by the board itself (self-evaluation) or by an outsider on behalf of the board (external review). Some boards may decide to evaluate their performance on an "as needed" basis, whereas others will prefer to conduct a periodic external review. A board evaluation typically covers how the board performs its duties, its leadership, its structure (including the committees), and the interaction between board members and management (including culture). Apart from internal stakeholders, the evaluation may be targeted to the company's shareholders, regulators, or other external stakeholders.

EXAMPLE 2

Evaluating the Board of Directors

1. A junior analyst is analyzing the board of directors of Style, a fictional global clothing retailer based in Italy. Style was founded by the Donato family and is publicly traded. Style's 11-member board of directors has a chairperson—who is not the CEO—and two independent directors. Among the six non-independent directors, the Donato family accounts for four of them. All these family members have served on the board for at least 20 years. The gender and age characteristics of the board are both diverse, with women representing five of the board's directors—including its chair, Leila Donato—and the directors ranging in age from 35 to 75 years old.

   Describe considerations that the junior analyst would use in evaluating the effectiveness of Style's board of directors.

Solution:

The CEO and chairperson roles are separate for Style (no CEO duality), which can be considered a sign of effective corporate governance. In addition, the board appears to be diverse in terms of age and gender, which is

typically considered a positive attribute. Conversely, board independence appears to be substandard: Only two board directors are independent, whereas four Donato family members, including the chairperson (Leila Donato), are board members. The tenure of the family board members is also likely to be considered a negative attribute (it far exceeds the typical 10 years).

Executive Remuneration

Executive remuneration involves such issues as transparency of compensation, performance criteria for incentive plans (both short term and long term), the linkage of remuneration with the company strategy, and the pay differential between the CEO and the average worker. When a corporation has a "say-on-pay" provision, shareholders can vote and/or provide feedback on remuneration issues. A clawback policy allows a company to recover previously paid remuneration if certain events, such as financial restatements, misconduct, breach of the law, or risk management deficiencies, are uncovered.

There is increasing concern among investors regarding "excessive" remuneration, often represented by the ratio of CEO pay to average-worker pay. In evaluating a company's executive remuneration, investors typically consider whether the company's remuneration policies and practices provide appropriate incentives for management to drive the value of a corporation. Company disclosures such as those metrics (also known as key performance indicators, or KPIs) used in executive incentive plans may be useful tools for analysis.

Shareholder Voting Rights

Shareholder voting rights are important investor considerations. Under **straight voting** share structures, shareholders are granted the right of one vote for each share owned. Dual-class share structures differ from straight voting in that company founders and/or management typically have shares with more voting power than the class of shares available to the general public. That is, dual-class share structures—in contrast to the one share, one vote principle of straight voting—can benefit one group of shareholders over another. Because a potential conflict of interest may exist between minority shareholders and the company's founders and management (some of whom may also serve on the board of directors), it is important for investors to be aware of dual-class share structures when investing.

IDENTIFYING ESG-RELATED RISKS AND OPPORTUNITIES

4

☐ describe how ESG-related risk exposures and investment opportunities may be identified and evaluated

A primary challenge when integrating ESG factors into investment analysis is identifying and obtaining information that is relevant and decision-useful. In practice, ESG-related data are generally obtained from publicly available corporate filings, documents, and communications such as corporate sustainability reports that may or may not be assured by a third party. Some of the challenges analysts face are related to

inconsistent reporting of ESG information and metrics as well as the fact that the level of disclosure varies because most ESG-related disclosures are voluntary. ESG-related disclosure has generally increased over time, however, because of increased stakeholder and shareholder interest in understanding whether a company effectively manages its ESG risks and opportunities.

Materiality and Investment Horizon

When considering ESG factors in investment analysis, analysts need to evaluate the *materiality* of the underlying data. In an ESG context, materiality typically refers to ESG-related issues that are expected to affect a company's operations, its financial performance, and the valuation of its securities. In overall financial reporting, information is considered to be material if omission or misstatement of the information could influence users' decisions. Companies' as well as stakeholders' definitions of materiality in an ESG context may differ. Some companies may use the term "material" in emphasizing positive ESG information, although such information may have little impact on the company's operations or financial performance. In contrast, a company may minimize or not report negative ESG information that investors might consider material.

Analysts also consider their investment horizon and holding period when deciding which ESG factors to consider in their analysis, especially credit analysts, because of the different maturities of bonds. Some ESG issues may affect a company's performance in the short term, whereas other issues may be more long term in nature. It is important to note that the time horizon of ESG factors' impact can move from the long term to the short term and vice versa depending on a wide variety of external factors, such as a sudden change in regulation or an ESG-related controversy such as an oil spill. An investor with a short-term investment horizon may find that longer-term ESG issues can have little effect on a security's market value in the near term. Consider a manufacturing company operating in an industry that is expected to face stricter environmental regulations in the future. An investor with a short-term horizon may expect that the company's profitability will not be affected in the short term. An investor with a long-term horizon, however, may anticipate costly upgrades to plants and equipment or significant regulatory fines that are likely to reduce profitability over the longer term.

Relevant ESG-Related Factors

Corporate governance considerations, such as the structure of the board of directors, are often reasonably consistent across most companies, although best practices vary greatly regionally. In contrast, there is no globally accepted best practice with regard to environmental and social considerations. When identifying a company's specific ESG risks and opportunities, analysts must determine the relevant factors that affect its industry. For example, energy companies are clearly more affected by environmental factors, whereas banking institutions are typically more affected by social factors (e.g., data security and privacy issues or customer satisfaction) than by environmental factors. Meanwhile, both industries are subject to governance factors. Once an analyst has determined which ESG-related factors are relevant to a company's industry, the analyst can identify applicable qualitative and quantitative data.

Approaches used to identify a company's (or industry's) ESG factors include (1) proprietary methods, (2) ratings and analysis from ESG data providers, and (3) not-for-profit industry initiatives and sustainability reporting frameworks. For example, Access to Nutrition Index evaluates the world's largest food and beverage

manufacturers' policies and performance related to the most pressing nutrition challenges: obesity and undernutrition. Each of the above approaches can be used independently, or a combination of approaches can be used.

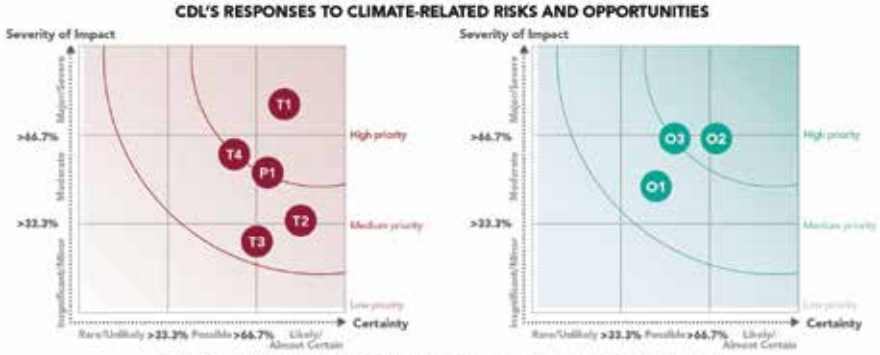
The first way of identifying company and industry ESG factors is the proprietary method approach. In this approach, analysts use their own judgment or their firm's proprietary tools to identify ESG information by researching companies, news reports, industry associations, environmental groups, financial markets, labor organizations, industry experts, and government organizations. Company-specific ESG data are generally publicly available from such sources as annual reports, corporate citizenship or sustainability reports, proxy reports, and regulatory filings (e.g., the annual 10-K report required by the US Securities and Exchange Commission). Company disclosures can generally be found on company websites.

Exhibit 2 illustrates an example of how management of one key ESG-related issue—climate change—is disclosed by City Developments Limited (CDL) in its sustainability report. Note that other real estate companies may report this information differently. In fact, ESG disclosures in general can range from minimal reporting to comprehensive data and information that span several pages, thus potentially creating comparability issues for analysts. As we discuss later in this section, a number of organizations and initiatives are working toward voluntary or mandatory standardization of various ESG-related metrics.

Exhibit 2: Climate Change Scenario Planning for City Developments Limited

Aligned with the recommendations of Task Force on Climate-related Financial Disclosures (TCFD) and Intergovernmental Panel on Climate Change (IPCC), CDL aims to better prepare its business for the potential financial impacts of both physical and transition risks of climate change.

CDL approached the study with two scenarios by 2030: one in which it assumed the world would decarbonize fast enough to meet the Paris Agreement's goal of limiting climate change to a global average surface temperature rise of 2°C; and another scenario that used a more ambitious 1.5°C above pre-industrial level rise. A systematic and cohesive approach was used to holistically assess and quantify all potential impacts on CDL's selected portfolio from material climate-related risks and opportunities.



Note: Priority levels are determined by the severity of impact and certainty of the risk/opportunity.

Source:

Transition Risks	
T1	Climate-related policy risks (e.g., increased carbon taxes and more-stringent building standards) increase operating and construction costs
T2	Water security risks increase operating costs and disrupt business continuity

Transition Risks	
T3	Call for companies to take greater responsibility of their waste production, leading to increased operating costs
T4	Climate risks lead to higher insurance premiums, lower coverage, and expose uninsurable assets
Physical Risks	
P1	Increased frequency and severity of climate events such as floods and heat-waves increase the risk of stranded assets
Opportunities	
O1	Consumer activism is on the rise globally
O2	Global shift to low-carbon growth is gaining steam
O3	Pioneering adoption of green finance in Singapore

Source: CDL, "Integrated Sustainability Report 2020."

The second approach in identifying company/industry ESG factors—ESG data providers—involves the use of information supplied by an ESG data provider (vendor), such as MSCI or Sustainalytics. These vendors obtain publicly available corporate ESG disclosures and translate them into individual ESG analyses, scores, and/or rankings for each company in the vendor's universe, often with subjective assessments by ESG analysts. In addition, vendors may score and/or rank companies within their industries and provide detailed industry analyses relating to ESG considerations.

The third approach in identifying ESG factors involves the consideration of not-for-profit initiatives and sustainability reporting frameworks that provide data and insights on ESG issues. These include the International Integrated Reporting Council (IIRC), the Global Reporting Initiative (GRI), the Sustainable Accounting Standards Board (SASB), and the 2° Investing Initiative (2DII), to name a few. The IIRC is a coalition of industry participants that promotes a standardized framework of ESG disclosures in corporate reporting. The GRI has worked with various stakeholder groups to develop sustainability reporting standards. These standards include a list of business activity groups (industries) with relevant sustainability topics that correspond to each group. A GRI report excerpt relating to the consumer durables and household and personal products sector is shown in Exhibit 3. The exhibit indicates the proposed ESG-related topics for this sector as well as additional specifications on these topics, if available. The SASB seeks to promote uniform accounting standards for sustainability reporting. In doing so, it has developed materiality maps, which list relevant ESG-related, sector-specific factors that the organization and industry working groups deem to be material.

As well as providing data and analysis, ESG service providers and not-for-profit initiatives provide a variety of tools to help integrate relevant ESG factors.

Exhibit 3: GRI Sustainability Topics—Consumer Durables and Household and Personal Products Sector

Category	Proposed Topic	Topic Specification (where applicable)
Environmental	Materials sourcing	Rare metals; Sourcing standards for raw materials; Sourcing standards on animal testing; Wood-based products from responsibly managed forests
	Product packaging	Not applicable

Category	Proposed Topic	Topic Specification (where applicable)
	Plastic use	Product and packaging
	Chemicals use	International and national chemical safe use regulations; Personal care products; Phthalates and parabens
	Energy efficiency of end products	Consumer electronics
	Life cycle assessment of products	Not applicable
	Product transport efficiency	Not applicable
Social	Migrant workers	Recruitment and employment
	Product safety	Personal care products—human health and the environment
	Transparent product information and labeling	Not applicable
	Access to products, technologies, and services	Consumers with disabilities
	Electronic waste (e-waste) management	Consumer awareness
	Product design	Eco-friendly personal care products
	Product innovation	Energy consumption, GHG emissions and packaging
Other	Corporate governance	Executive board compensation; Gender participation on governance bodies
	Supplier screening	Environmental and social standards in the supply chain

Source: GRI, "Sustainability Topics for Sectors: What Do Stakeholders Want to Know?" (2013).

From a risk/reward perspective, the use of **ESG integration**—the implementation of qualitative and quantitative ESG factors in traditional security and industry analysis as well as portfolio construction—typically differs for equity and fixed-income (debt) analysis. In equity analysis, ESG integration is used to both identify potential opportunities and mitigate downside risk, whereas in fixed-income analysis, ESG integration is generally focused on mitigating downside risk as the bond redeems at par on maturity.

The process of identifying and evaluating relevant ESG-related factors is reasonably similar for both equity and corporate credit analysis, because they share the same above-mentioned proprietary methods although material factors may differ based on relevance to credit. ESG integration techniques are also reasonably similar, such as adjustments to forecasted financial metrics and ratios, although the implication differs in practice.

In equity security analysis, ESG-related factors are often analyzed in the context of forecasting financial metrics and ratios, adjusting valuation model variables (e.g., discount rate), or using sensitivity and/or scenario analysis. For example, an analyst might increase her forecast of a hotel company's operating costs because of the impacts of excessive employee turnover—lost productivity, reduced customer satisfaction, and increased expenses for employee searches, temporary workers, and training programs. As another example, an analyst might choose to lower the discount rate for a snack food company that is expected to gain a competitive advantage by transitioning to a sustainable source of a key ingredient in its products.

In credit analysis, ESG factors may be integrated using internal credit assessments, forecasting financial ratios, and relative credit ranking of companies (or governments). In terms of valuation, relative value, spread, duration, and sensitivity/scenario analysis are often used. For example, an analyst may include the effect of lawsuits on the credit ratios, cash flow, or liquidity of a toy company. The same analyst may also estimate the potential for the credit spreads of the toy company's bonds to widen from these lawsuits. Generally speaking, the effect on the credit spreads of an issuer's

debt obligations or its credit default swaps (CDSs) may differ depending on maturity. As a different example, consider an analyst who believes that a coal company faces long-term risk from potential **stranded assets**—that is, assets that are obsolete or not economically viable, often owing to changes in regulatory or government policy and/or shifts in demand. In this case, the analyst may believe that valuation of the coal company's 10-year-maturity notes would be considerably more negatively affected than its 1-year-maturity notes.

One particular type of bond an analyst might encounter is a **green bond**. The sidebar "Green Bonds" provides more detail about these securities and how investors typically analyze them. Increasingly, investors use scenario analysis and stress tests to assess the potential impact of key factors, such as physical risks of climate change.

GREEN BONDS

Green bonds are bonds in which the proceeds are designated by issuers to fund a specific project or portfolio of projects that have environmental or climate benefits. The first green bond, the Climate Awareness Bond, was issued by the European Investment Bank in 2007. Issuers have the primary decision for labeling their bonds "green." This decision is made in close cooperation with the lead underwriter. At a minimum level, issuers provide detail to the investors about the green eligibility criteria for the use of proceeds, in line with the Green Bond Principles (discussed in the next paragraph). Issuers are responsible for providing investors with details on the criteria used to classify the bonds as green and how the bond's proceeds are used. In some cases, issuers may commission independent reviews of the green criteria to provide investors with greater transparency. Issuers of green bonds typically incur additional costs related to the monitoring and reporting of the use of the bond's proceeds. However, these issuers may benefit from a more diversified investor base and potentially a new-issue premium if demand is strong.

The Green Bond Principles, a set of voluntary standards to guide issuers in the determination of labeling a bond as green, were developed in 2014 by a consortium of investment banks. Ongoing monitoring and further development of the Green Bond Principles is the responsibility of the International Capital Market Association, a global securities self-regulatory organization. As the green bond market has evolved, index providers, credit rating agencies, and the not-for-profit Climate Bonds Initiative have developed their own methodologies or standards to assess labeled green bonds. In addition, the European Commission is exploring the feasibility of imposing specific criteria that must be met for a bond to be labeled green.

Green bonds typically resemble an issuer's conventional bonds, with the exception that the bond proceeds are earmarked for green projects. Green bonds normally have the same credit ratings and bondholder recourse as conventional bonds of the same issuer (all else being equal). In addition to conventional or "plain vanilla" corporate bonds, other types of green bonds include project bonds, mortgage-backed and asset-backed securities, and municipal bonds. For example, the state of California's $300 million general obligation 2014 green bond issue is backed by the state's General Fund, just as California's other general obligation bonds are.

Because only the use of proceeds differs, the analysis and valuation of green bonds are essentially the same as those of conventional bonds. Some green bonds, however, may command a premium, or tighter credit spread, versus comparable conventional bonds because of market demand. One unique risk of green bonds is **greenwashing**, which is the risk that the bond's proceeds are not actually used for a beneficial environmental or climate-related project.

Greenwashing can result in an investor overpaying for a bond (if the investor paid a premium for the bond's green feature) or holding a bond that does not satisfy a prescribed environmental or climate investment mandate. Liquidity risk may also be a consideration for green bonds, given that they are often purchased by buy-and-hold investors.

EVALUATING ESG-RELATED RISKS AND OPPORTUNITIES

5

☐ evaluate ESG risk exposures and investment opportunities related to a company

By integrating ESG considerations into the investment process, investors can take a broader perspective of company and industry analysis. In this way, the potential effects of ESG factors on a company's financial statements and valuation can be assessed and, in turn, can help drive investment decisions. In this section, we discuss examples of how ESG considerations can be integrated into financial analysis and valuation, from both an equity and a corporate bond perspective.

ESG Integration

A typical starting point for ESG integration is the identification of material qualitative and quantitative ESG factors that pertain to a company or its industry. An analyst may evaluate these factors on both a historical and a forecast basis, as well as relative to a company's peers, and then make relevant adjustments to a company's financial statements or valuation. ESG-related adjustments to a company's income statement and cash flow statement typically relate to projected revenues, operating/non-operating costs, operating margins, earnings, capital expenditures, or other items. ESG-related adjustments to a company's balance sheet often reflect an analyst's estimate of impaired assets. For equities, valuation adjustments often include adjusting a company's cost of capital using the discount rate or a multiple of price or terminal value. For bonds, an analyst may adjust an issuer's credit spread or CDS to reflect anticipated effects from ESG considerations.

The use of qualitative and quantitative research, as well as securities valuation of equities and fixed income, are key elements of the "ESG Integration Framework" (see Exhibit 4). Portfolio construction, asset allocation, scenario analysis, and risk management form the remainder of this framework.

Exhibit 4: The ESG Integration Framework

Source: Guidance and Case Studies for ESG Integration: Equities and Fixed Income, 2018

Examples of ESG Integration

This section provides examples of ESG integration for three fictitious companies in different industries: beverages, pharmaceuticals, and banks. For simplicity, each integration example focuses on either environmental, social, or governance factors—largely depending on which is most relevant for that company or its industry. Note that although specific industries are used in the examples, the underlying concepts can be applied to other industries as well. Finally, given the scope of this reading, we focus on the *effects* of ESG integration on financial analysis and valuation rather than the computations involved.

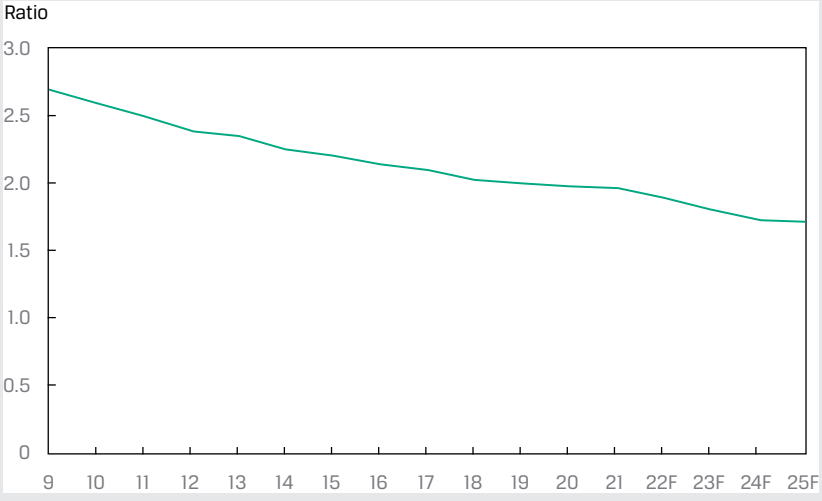
EXAMPLE 3

ESG Integration—Environmental Factors (Beverage Company)

1. Based in the United States, Frizzle Drinks (Frizzle) is a fictitious non-alcoholic beverage company that ranks among the largest in the world. Frizzle operates in both developed and emerging markets, including countries where water is scarce. Frizzle is a significant user of water in its operations. Given that water is a key ingredient in Frizzle's beverages, the continued availability of water is critical to the company's manufacturing process. Because of its extensive use of water, Frizzle faces ongoing regulatory scrutiny for pollution and effects on climate change. Ultimately, how Frizzle conserves and manages its water usage has implications for product pricing and company/brand reputation.

   Sam Smith, CFA, is analyzing the effects of environmental factors on Frizzle's financial statements. Based on his research, Smith considers "water intensity" to be a key ESG metric for the beverage industry. Water intensity is defined as the ratio of total liters of water used per one liter of a beverage product. Exhibit 5 illustrates the trend of Frizzle's water intensity ratio from 2009 to 2021, as well as the consensus forecast ratio for the subsequent four years. Frizzle has steadily decreased its water usage over the past several years. From 2009 to 2021, its water intensity ratio declined by 27%. By the end of 2025(F), the company aims to reduce its water intensity by another 13%.

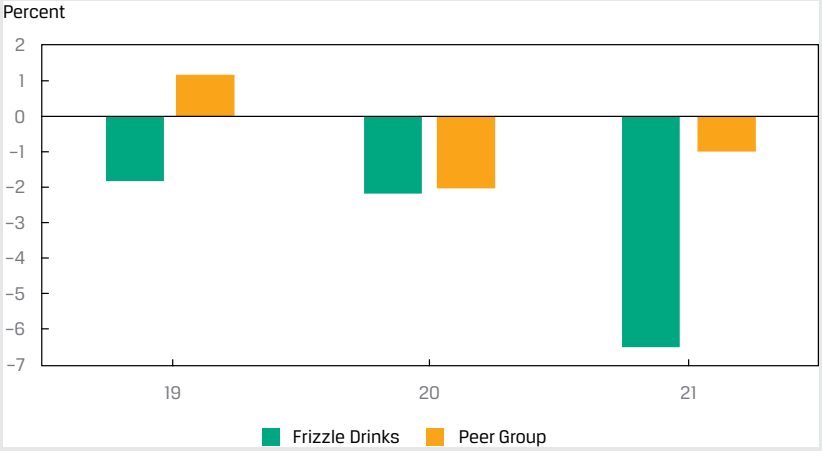
Exhibit 5: Water Intensity Ratio (in liters)



Note: (F) indicates forecast year.

   Exhibit 6 compares the year-over-year change in Frizzle's water intensity ratio with that of its peer group over the past three years. To facilitate comparison among companies of varying sizes, Smith normalized the reported water intensity ratios by calculating the water intensity ratio per $1 million of revenue. Exhibit 6 illustrates that Frizzle's water intensity has decreased considerably relative to its peers over the past few years, particularly in the last reported year, 2021.

Exhibit 6: Water Intensity Ratio Change per $1 Million of Revenue



Next, Smith analyzes the effects of Frizzle's water intensity on its overall financial performance and compares it with the adjusted financial performance of its peers. As one example, Smith adjusts Frizzle's operating costs to account for the improved effects of water intensity (i.e., reduced usage). For the first projected year, 2022, Smith expects that Frizzle's cost of goods sold as a percentage of revenues (before any ESG adjustment) will be 40% and its peer group average will be 42%. For the same forecast period, Smith assumes that Frizzle's reduction in water intensity will result in a 1% reduction in its cost of goods sold/revenues, whereas the peer group average will remain the same. Exhibit 7 demonstrates this improvement in cost of goods sold/revenues on a relative basis. By extension, Exhibit 8 shows the absolute and relative improvement in Frizzle's gross margin (sales minus cost of goods sold) percentage.

Exhibit 7: Cost of Goods Sold as a Percentage of Revenue

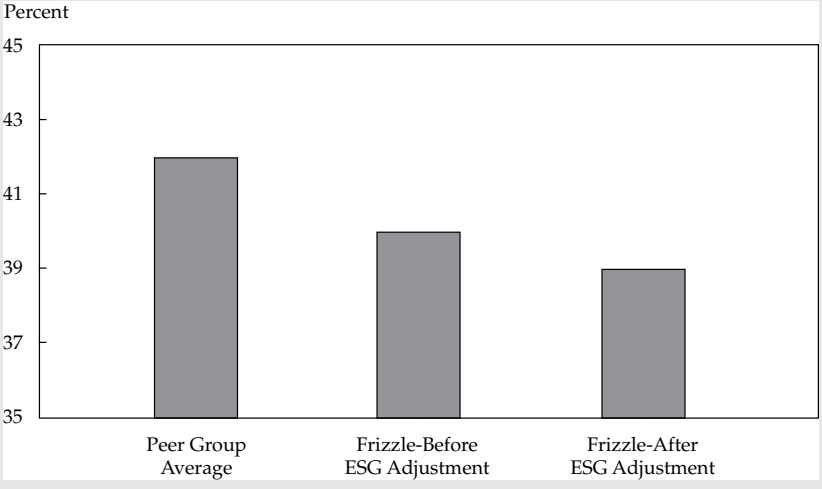
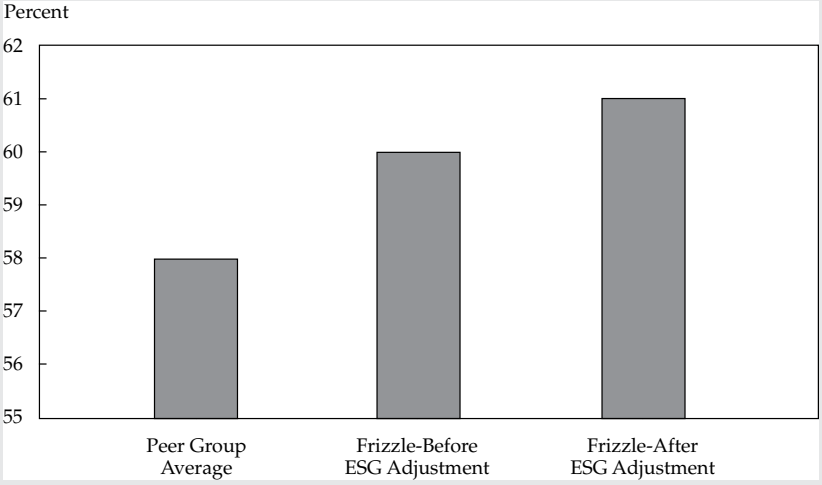


Exhibit 8: Gross Margin



In the last step of the integration analysis, Smith incorporates Frizzle's adjusted financial performance in valuing Frizzle's stock, bonds, and, if applicable, CDSs. In this example, Smith judges that Frizzle's lower cost of goods sold from the adjustment would result in higher forecast earnings and, all else being equal, a theoretically higher fair value for Frizzle's stock. With respect to Frizzle's bonds and CDSs, Frizzle's operating cash flow would improve through a lower cost of goods sold. When assessing the credit spreads of Frizzle's bonds and/or CDSs, Smith will analyze whether the lower relative ESG risk is already reflected in current spread levels and adjust accordingly.

EXAMPLE 4

ESG Integration—Social Factors (Pharmaceutical Company)

1. Well Pharma (Well) is a fictitious European pharmaceutical company that manufactures drug products for autoimmune diseases and immune disorders. Over the last five years, Well has had the weakest track record among its peers in terms of product recalls and regulatory warning letters for manufacturing and marketing-related violations. Specifically, the company has been subject to four major drug quality and safety scandals arising from adverse side effects. These scandals have resulted in lost sales, multiple lawsuits, and significant fines. Business disruptions, lawsuits, and fines have reduced revenues and increased costs for the company.

   As Well's experience shows, product quality is a material social factor for pharmaceutical companies in general. Smith assumes that a drug company's product quality is a combination of the factors shown in Exhibit 9.

Exhibit 9: Social Factors—Pharmaceuticals

Factor	Description
Product Quality Controversies	Have there been any controversies linked to the company's product or service quality and responsibility?
Regulatory Warning Letters	Number of regulatory warning letters received by the company
Product Recalls	Number and severity of product recalls (voluntary and involuntary)
Regulatory Fines	Level of fines imposed by regulator linked to poor product quality and/or irresponsible behavior
Product Quality Certifications Percentage	Percentage of plants certified according to a widely accepted product safety/quality standard (e.g., ISO 9001 or equivalent)

Exhibit 10 shows the number of regulatory warning letters received, as well as product and marketing controversies faced, by Well and several peers. As the graph shows, Well has received significantly more of these letters than its peers have.

Exhibit 10: Regulatory Warning Letters and Product Quality Controversies

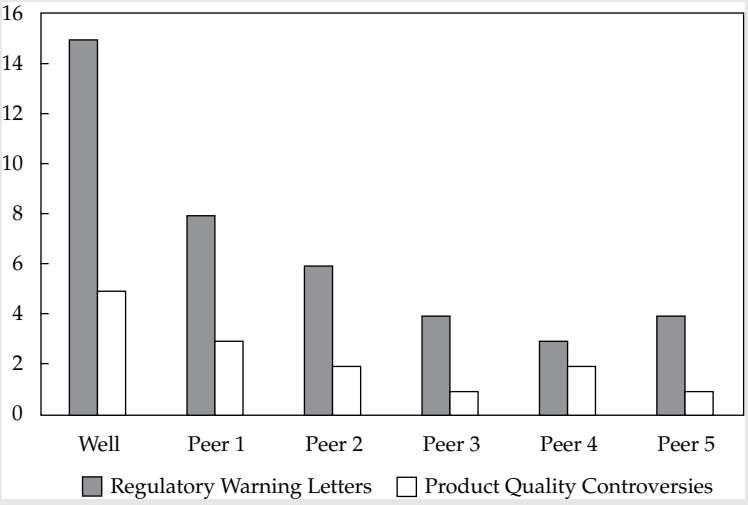


Exhibit 11 demonstrates how the factors listed in Exhibit 9 may affect the financial statements of Well and other pharmaceutical companies.

Exhibit 11: Social Factor Effects on Financial Performance

Factor	Financial Impact
Product Quality Controversies	Damage to brand value resulting in potential decrease in sales
Regulatory Warning Letters	Increased costs to comply with regulatory requirements

Factor	Financial Impact
Product Recalls	Losses in sales revenue; increased costs of implementing product recalls
Regulatory Fines	Provisions for pharmaceutical sales returns and product-related litigation
Product Quality Certifications Percentage	Lower percentage increases risks of product quality issues, leading to product recalls and related costs

Based on these financial effects, Smith adjusts Well's projected revenues, operating expenses, and non-operating expenses. The nature of these financial statement adjustments will likely differ depending on whether Smith expects these product quality issues to be recurring or non-recurring in nature. Smith assumes that revenues will decrease by 2% over the next year because of existing product quality controversies. For operating expenses, Smith assumes that Well's cost of goods sold relative to revenues will increase by 1.3% to reflect product quality and additional investments in its manufacturing process. Exhibit 12 shows that Well's cost of goods sold as a percentage of revenues is in line with that of its peers, but the additional costs will increase this ratio well above that of the peer group. In addition to operating expenses, Smith forecasts that Well's non-operating expenses, such as restructuring charges, and other non-recurring costs will be an additional 4.5% of operating income. Exhibit 13 shows the current non-operating expense ratio for Well versus its peer group average, as well as the forecast amount.

Exhibit 12: Cost of Goods Sold as a Percentage of Revenue

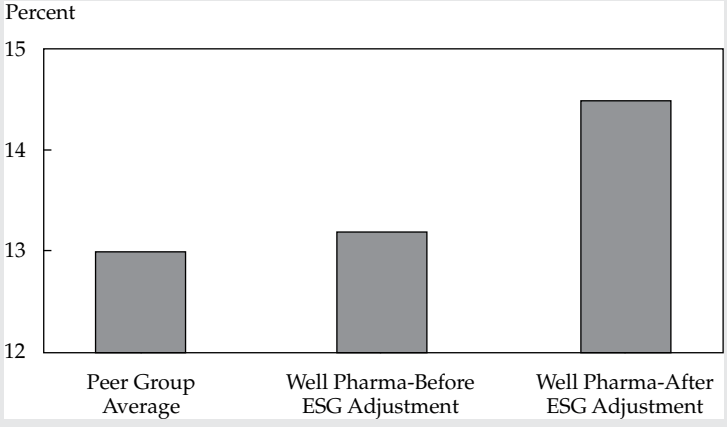
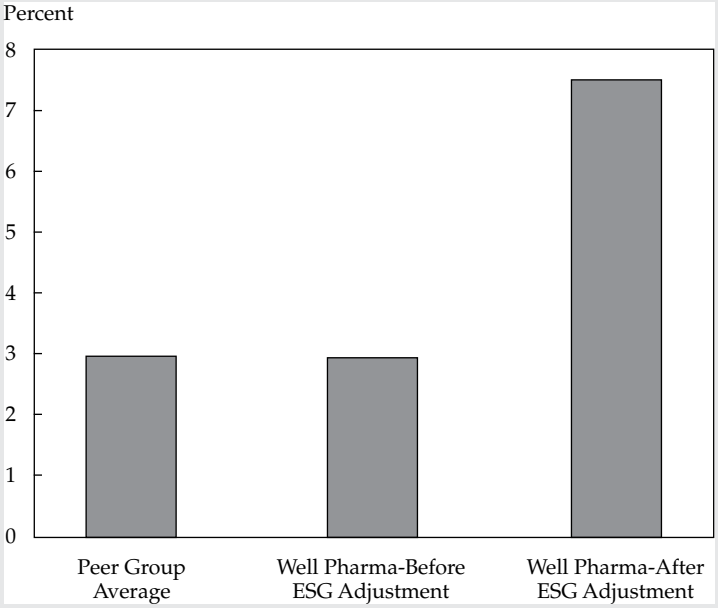


Exhibit 13: Non-Operating Expenses as a Percentage of Operating Income



Smith believes that the valuation implications for Well's stock and bonds could be significant based on its poor product quality and safety track record. Expectations of future poor performance could have a direct impact on earnings and cash flow to the detriment of both shareholders and bondholders. In addition, Smith believes there could be adverse valuation implications if investors view Well's brand value and reputation as impaired.

EXAMPLE 5

ESG Integration—Governance Factors (Bank Holding Company)

1. Sumiyoshi Banking Group (Sumiyoshi) is a fictitious Japanese bank holding company, with operations in Japan (80% of revenues), the United States, and Southeast Asia. Sumiyoshi's core businesses are commercial banking, leasing, securities, and consumer finance. As with most global banks, corporate governance reforms have become increasingly prominent for Sumiyoshi.

   Smith has prepared Exhibit 14 to show how Sumiyoshi's board of directors compares with the majority of its domestic peer group, on the basis of governance factors discussed in Section 2 of this reading.

Exhibit 14: Corporate Governance Factors—Banks

	Domestic peer group	Sumiyoshi Bank
Board type	Two tier	Two tier
Board size, no. of directors	13	14
Total assets/director	JPY14.9 million	JPY13.3 million
CEO duality	Yes	Yes

	Domestic peer group	Sumiyoshi Bank
Independent chairperson	Yes	No
Board independence %	47%	36%
Board gender diversity	17% female; 83% male	7% female; 93% male
Directors with long tenure (>10 years)	0%	14%
Number of board committees	5	4
Audit, nomination, remuneration, and risk committees in place?	Yes	Yes
Additional board committees?	Yes, governance committee	No
Non-executive directors with industry executive experience/total independent directors	67%	20%
Short-term and long-term incentive plan metrics disclosed?	No	No
Concentrated ownership	No single large shareholder	No single large shareholder
Say-on-pay provision	Yes	No
Straight voting	Yes	Yes
Dual-class shares	No	No

Smith notes that Sumiyoshi lags its peers in in several elements of board composition, such as the lack of an independent chairperson, a lower level of board independence and diversity, fewer board members with industry executive experience, and a number of board directors with long tenures. In addition to board composition, Smith uses credit risk as a proxy for a bank's corporate governance risk. In particular, Smith reviews one key banking credit measure—non-performing loans (NPLs). NPLs are loans that are not current in paying the contractual amounts that are due (i.e., interest or principal payments).

Smith analyzes Sumiyoshi's credit risk by dividing its NPLs by the amount of its total loans outstanding. Smith estimates that Sumiyoshi's ratio of NPLs to total loans is 50 bps higher than its peer group average, reflecting Sumiyoshi's comparatively weaker credit/governance risk. To account for the effect of higher credit risk than that of its peers, Smith may increase the risk premium embedded in his valuation of Sumiyoshi's stock. When valuing Sumiyoshi's corporate bonds, Smith might increase the credit spread relative to peers embedded in the company's outstanding issues.

SUMMARY

- Shareholder ownership structures are commonly classified as dispersed, concentrated, or a hybrid of the two.
- Dispersed ownership reflects the existence of many shareholders, none of which, either individually or collectively, has the ability to exercise control over the corporation. Concentrated corporate ownership reflects an individual shareholder or a group (controlling shareholders) with the ability to exercise control over the corporation.

- Controlling shareholders may be either majority shareholders or minority shareholders.
- Horizontal ownership involves companies with mutual business interests that have cross-holding share arrangements with each other. Vertical (or pyramid) ownership involves a company or group that has a controlling interest in two or more holding companies, which in turn have controlling interests in various operating companies.
- Dual-class (or multiple-class) shares grant one or more share classes superior or even sole voting rights while other share classes have inferior or no voting rights.
- Types of influential owners include banks, families, sovereign governments, institutional investors, group companies, private equity firms, foreign investors, managers, and board directors.
- A corporation's board of directors is typically structured as either one tier or two tier. A one-tier board consists of a single board of directors, composed of executive (internal) and non-executive (external) directors. A two-tier board consists of a supervisory board that oversees a management board.
- CEO duality exists when the chief executive officer also serves as chairperson of the board.
- A primary challenge of integrating ESG factors into investment analysis is identifying and obtaining information that is relevant, comparable, and decision-useful.
- ESG information and metrics are inconsistently reported by companies, and such disclosure is voluntary, which provides additional challenges for analysts.
- In an ESG context, materiality typically refers to ESG-related issues that are expected to affect a company's operations or financial performance and the valuation of its securities.
- Corporate governance considerations, such as the structure of the board of directors, tend to be reasonably consistent across most companies. In contrast, environmental and social considerations often differ greatly.
- Analysts typically use three main sources of information to identify a company's (or industry's) ESG factors: (1) proprietary research, (2) ratings and analysis from ESG data providers, or (3) research from not-for-profit industry organizations and initiatives.
- In equity analysis, ESG integration is used to both identify potential opportunities and mitigate downside risk, whereas in fixed-income analysis, ESG integration is generally focused on mitigating downside risk.
- A typical starting point for ESG integration is the identification of material qualitative and quantitative ESG factors that pertain to a company or its industry.

PRACTICE PROBLEMS

The following information relates to questions 1-6

Theresa Blass manages the Toptier Balanced Fund (the Fund) and recently hired John Yorkton, a junior analyst, to help her research investment opportunities. Blass plans to integrate environmental, social, and governance (ESG) factors into her analysis. She is researching an equity investment in Titian International, a global steel producer. She asks Yorkton to identify ESG factors impacting Titian and estimate the equity valuation for the company.Yorkton uses proprietary methods to identify the ESG factors.

Yorkton points out that Titian's steel production is energy intensive and relies on coal in producing its main product, stainless steel. The firm's major customers are oil and gas firms using stainless steel in their drilling operations. Most of Titian's steel capacity is located in developing economies, where it currently faces few environmental regulations. Titian has a 10-member board with a chairperson and 5 independent members. The chairperson is not the CEO, and the board is diverse, with 6 women. The company has an excellent record on employee health and safety. In a discussion with Blass about ESG factors in investment analysis, Yorkton makes the following statements:

Statement 1	Material ESG information used in investment analysis is best obtained from the individual companies.
Statement 2	The level of disclosure varies among companies because these disclosures are voluntary.
Statement 3	The time horizon has little effect on the materiality of the underlying ESGfactors.

Yorkton integrates ESG factors into the equity valuation of Titian. He believes the company faces significant long-term risk due to regulatory changes regarding greenhouse gas emissions in the developing economies. These changes will have a negative impact on Titian's steel capacity and its production costs. Based on long-term forecasts from the International Energy Agency (IEA), Yorkton expects oil and natural gas demand to decline over the next decade, reducing oil company capital expenditures on exploration and drilling. He uses a discounted cash flow model to value Titian stock.

1. The potential problem with Yorkton's approach to identifying ESG factors is the:
   - **A.** promotion of uniform accounting standards.
   - **B.** subjective assessment of ESG scores and rankings.
   - **C.** inconsistent reporting of ESG information and metrics among firms.

2. The most relevant industry risk factors affecting Titian are:
   - **A.** social.
   - **B.** governance.

C. environmental.

3. Which of the statements made by Yorkton on ESG factors in investment analysis is correct?

   A. Statement 1

   B. Statement 2

   C. Statement 3

4. Titian faces long-term risk from ____ due to potential regulatory changes in the developing economies.

5. Yorkton's ESG integration approach is likely to impact equity valuation by:

   A. increasing revenues.

   B. raising the discount rate.

   C. reducing operating costs.

6. After integrating the ESG factors into the discounted cash flow model, the equity value of Titian is likely to:

   A. decrease.

   B. remain unchanged.

   C. increase.

The following information relates to questions 7-10

Emily Marker, CFA, is a fixed-income analyst for the Namsan Funds. Her supervisor asks her to identify ESG factors and value the corporate bonds of BR Hotels, a publicly traded boutique hotel company. Marker notes that BR Hotels is a "green hotel" company that prioritizes sustainability and has successfully reduced water and energy usage at its hotels. The founding family owns 55% of the outstanding shares. Each ownership share has equivalent voting rights.The board of directors of BR Hotels consists of 15 members, with independent CEO and chairperson roles. The board includes one independent member and two women, and 20% of the board members have experience in the hotel industry.

BR Hotels has historically had a high labor turnover rate. Most of its workforce are paid at or near the minimum wage, and the company offers no health benefits. Marker and her supervisor discuss how BR Hotels will be affected by the expected passage of legislation raising the minimum wage and growing pressure to offer benefits. Marker integrates ESG factors in the investment valuation of BR Hotels' corporate bonds.

7. The potential conflict between or among shareholders and managers of BR Hotels can best be described as:

   A. voting caps.

   B. a principal-agent problem.

C. a principal-principal problem.

8. BR Hotels' corporate governance risk is increased by:

A. CEO duality.

B. family control.

C. the low percentage of independent board members.

9. The security analysis of BR Hotels is most *likely* focused on:

A. mitigating downside risk.

B. adjusting the discount rate.

C. identifying potential opportunities.

10. After integrating the ESG factors, the credit spread on BR Hotels' bonds is most likely to:

A. decrease.

B. remain unchanged.

C. increase.

SOLUTIONS

1. C is correct. Yorkton uses the proprietary method to identify company and industry ESG factors. This approach relies on using company-specific ESG data that is publicly available from annual reports, proxy reports, corporate sustainability reports, and regulatory filings such as the 10-K. The problem is inconsistent reporting of ESG information and metrics among firms. The level of disclosure also varies considerably among companies because ESG-related disclosures are voluntary. This creates comparability issues for analysts.

   A is incorrect because the promotion of uniform accounting standards is an alternative approach used to identify ESG reports. This approach involves not-for-profit initiatives and sustainability reporting frameworks that develop a standardized framework of ESG disclosures in corporate reporting. As an example, the Sustainable Accounting Standards Board (SASB) seeks to promote uniform accounting standards.

   B is incorrect because it relates to an alternative approach to identifying company and industry ESG factors. This approach involves using information supplied by ESG data vendors, such MSCI or Sustainalytics. The vendors provide ESG scores and/or rankings for each company. The problem with this approach is the subjective element to the interpretation of ESG scores and rankings.

2. C is correct. In identifying a company's ESG risks and opportunities, an analyst must determine which ESG factors are relevant to its industry. Industries such as energy and steel are typically more impacted by environmental factors. This is clearly the case with Titian. Titian's steel production is energy intensive and relies on coal in producing its main product, stainless steel. Its major customers are oil and natural gas companies, and most of its steel capacity is located in developing economies, where it currently faces few environmental regulations. Changes in such regulations and projected declining demand for its main product are major risk factors for the firm.

   B is incorrect because social factors are typically not the most important industry-related ESG risk factors for steel companies. Employee health and safety is a material social factor for this company. This is not a risk since the company has an excellent record on employee health and safety.

   C is incorrect because governance factors are not a major risk for Titian. Titian's board comprises 10 members, of whom 5 are independent. In addition, the board has gender diversity and no CEO duality, since the chairperson is not the CEO.

3. B is correct. Statement 2 is correct because the level of disclosure varies considerably among companies since ESG-related disclosures are voluntary. This creates a comparability issue for analysts. This is a problem associated with the proprietary methods used to identify company and industry ESG factors.

   A is incorrect because Statement 1 is incorrect. The problems in doing ESG investment analysis based on company information are that the reporting of this information is inconsistent and that disclosures vary among companies.

   C is incorrect because Statement 3 is incorrect. The time horizon is an important factor affecting the materiality of the underlying ESGfactors. Some ESG issues may affect a company's performance in the short term, whereas other issues may be more relevant in the long term. This is especially true in credit analysis because of the different maturities of the bonds.

4. Titian faces long-term risk from *stranded assets* due to potential regulatory

changes in the developing economies.

If regulatory changes on greenhouse gas emissions are enacted in these developing economies, much of Titian's stainless steel capacity will become obsolete or not economically viable. This will result in ESG-related adjustments to Titian's balance sheet. The further reduction in oil demand will make the steel capacity economically unviable.

5. B is correct. Titian faces significant long-term environmental risk factors. The imposition of stricter regulation on greenhouse gas emissions in the developing countries will result in stranded assets, as much of Titian steel capacity becomes obsolete and not economically viable. Shifting away from low-cost coal usage will likely result in higher operating costs, and declining oil and natural gas demand will result in lower revenues for stainless steel. Thus Yorkton should raise the discount rate for Titian to account for the higher environmental risk.

   A is incorrect because Titian's revenues are likely to decline as a result of the projected fall in demand for oil and natural gas. As a result, oil and natural gas companies will cut their exploration and drilling budgets and reduce their purchases of stainless steel.

   C is incorrect since operating costs are likely to rise as Titian shifts away from using low-cost coal to more expensive energy sources.

6. A is correct. The stock price for Titian is likely to decline. Titian faces significant long-term environmental risk as a result of more stringent future regulation on greenhouse gas emissions in the developing economies and a future decline in demand for its main product, stainless steel. Thus in the discount cash flow model, Titian should increase the cost of equity and most likely lower the growth rate in cash flow. Both factors will cause the price to fall.

   B is incorrect since the price of Titian is likely to decline and not remain unchanged.

   C is incorrect since the price of Titian is likely to decline and not increase.

7. C is correct. BR Hotels has concentrated ownership, given that the family owns 55% of the shares. It also has concentrated voting power, since each ownership share has equal voting rights. In this ownership structure, the controlling shareholders have power over both management and minority shareholders. The controlling shareholders are referred to as strong shareholders and the managers as weak managers. The conflict in this structure exists between the controlling shareholders and the minority shareholders. The controlling shareholders can potentially divert resources for their own benefit at the expense of the minority shareholders. This conflict is referred to as a principal-principal problem.

   A is incorrect since the conflict for BR Hotels is a principal-principal problem. Voting caps are legal restrictions on the voting rights of large share positions. They result from an ownership structure of concentrated ownership and dispersed voting rights.

   B is incorrect since the conflict for BR Hotels is a principal-principal problem. The principal-agent problem occurs when the ownership structure has dispersed ownership and dispersed voting rights. In this case, the structure has weak shareholders and strong management, with a potentially significant conflict between the shareholders and the management.

8. C is correct. The corporate governance risk for BR Hotels is high due to a low percentage of independent board members. Of the 15 members on the board, only one is independent. Many OECD countries have introduced a recommendation for the minimum ratio of independent directors serving on the board. They typically set the minimum ratio of independent directors in a range of 20%–50%

or greater. BR Hotels falls below this range.

A is incorrect since CEO duality is not a governance problem for BR Hotels. BR Hotels' CEO and chairperson are separate, so there is no CEO duality. This is typically a sign of effective corporate governance. The independent chairperson and CEO roles help protect investor interests.

B is incorrect because family control is not likely to increase governance risk for BR Hotels. Family control lowers the risks associated with principal-agent problems. This is the result of the family's having concentrated ownership and management responsibility. The lower risk associated with the principal-agent problem is somewhat offset by the drawbacks of family control, which include poor transparency, modest considerations for minority shareholder rights, and difficulty in attracting quality management talent.

9. A is correct. The implementation of ESG factors in security analysis differs for equity analysis and fixed-income analysis. For BK Hotels' corporate bonds, the focus of ESG integration is on mitigating downside risk. In contrast, in equity analysis, ESG integration is used to both identify potential opportunities and mitigate downside risk.

   B is incorrect since adjusting the discount rate is typically used in equity analysis and not in fixed-income analysis. In valuing a stock, an analyst may choose to adjust the discount factor to account for the ESG risk. In fixed-income analysis, the credit spread or CDS is adjusted to reflect the ESG risk.

   C is incorrect since identifying potential opportunities is used in equity analysis and not in fixed-income analysis. In fixed-income analysis, the focus of ESG integration is on mitigating downside risk. In equity analysis, ESG integration is used to both identify potential opportunities and mitigate downside risk.

10. C is correct. BR Hotels faces significant corporate governance and social risk. Corporate governance risk is high due to a low number of independent board members (1 out of 15 members), lack of gender diversity (2 women out of 15 members), and low percentage of board members with hotel industry experience (20%). These factors are likely to increase investors' perception of the corporation's risk. The social risk for BR Hotels is also high. BR Hotels has a high labor turnover rate, pays most of its workforce at or near the minimum wage, and offers no health benefits. Legislation raising the minimum wage and the growing pressure on BR Hotels to offer benefits would increase operating costs. This could have a negative impact on future cash flows, which would be detrimental to the bond holders. The valuation of BR Hotels' bonds could be adversely affected by the higher ESG risk. To account for the higher ESG risk, the credit spread on BR Hotels' bonds is likely to increase.

    A is incorrect since the credit spread on BR Hotels' bonds is likely to increase and not decrease.

    B is incorrect since the credit spread on BR Hotels' bonds is likely to increase and not remain unchanged.

LEARNING MODULE

3

Cost of Capital: Advanced Topics

by Lee M. Dunham, PhD, CFA, and Pamela Peterson Drake, PhD, CFA.

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LEARNING OUTCOMES

Mastery	*The candidate should be able to:*
☐	explain top-down and bottom-up factors that impact the cost of capital
☐	Compare methods used to estimate the cost of debt.
☐	explain historical and forward-looking approaches to estimating an equity risk premium
☐	compare methods used to estimate the required return on equity
☐	estimate the cost of debt or required return on equity for a public company and a private company
☐	evaluate a company's capital structure and cost of capital relative to peers

INTRODUCTION

1

A company's **weighted average cost of capital (WACC)** represents the cost of debt and equity capital used by the company to finance its assets. The **cost of debt** is the after-tax cost to the issuer of debt, based on the return that debt investors require to finance a company. The **cost of equity** represents the return that equity investors require to own a company, also referred to as the **required rate of return on equity** or the required return on equity.

A company's WACC is used by the company's internal decision makers to evaluate capital investments. For analysts and investors, it is a critical input used in company valuation.

Equation 1 reminds us that a company's WACC is driven by the proportions, or weights (the w_i), of the different capital sources used in its capital structure, applied to the costs of each source (the r_i), with d, p, and e subscripts denoting debt, preferred equity, and common equity, respectively:

$$\text{WACC} = w_d r_d(1 - t) + w_p r_p + w_e r_e. \quad (1)$$

(These weights are all non-negative and sum to 1.0.)

Determining a company's WACC is an important, albeit challenging, task for an analyst given the following:

- Many different methods can be used to calculate the costs of each source of capital; there is no single, "right" method.
- Assumptions are needed regarding long-term **target capital structure**, which might or might not be the current capital structure.
- The company's marginal tax rate must be estimated and might be different than its average or effective tax rate.

Estimating the cost of capital for a company thus involves numerous, sometimes complex, assumptions and choices, all of which affect the resulting investment conclusion.

2 COST OF CAPITAL FACTORS

☐ explain top-down and bottom-up factors that impact the cost of capital

Financial theory argues that companies should seek the optimal mix of debt and equity that results in the lowest WACC and maximizes shareholder wealth. Given differences in risk and financial risk tolerances across companies, the capital structure, cost of debt, and costs of equity vary across companies.

A company's cost of capital is influenced by the type of capital the company seeks. Because of its lower risk relative to equity, debt capital typically has a lower cost than equity capital. A company's cost of debt, before considering the tax deductibility of interest, can be represented as the sum of the benchmark **risk-free rate** and a **credit spread** that compensates investors for the risk inherent in the company's debt security:

$$r_d = r_f + \text{Credit spread.} \quad (2)$$

The credit spread reflects company-specific factors such as the riskiness of the company's business model, future profitability and growth prospects, applicable tax rates, the protective covenants in the debt securities, the company's policy regarding debt leverage—and possible changes thereto, the maturity and callability of the debt, and the nature and liquidity of the company's assets and operations.

A company's cost of equity is its equity investors' required rate of return. Unlike the pre-tax cost of debt, which can generally be observed using the yield on a company's recent debt issue, the cost of equity is not observable and must be estimated. There are many models used to estimate required or expected equity returns, but the most common in practice is the single factor capital asset pricing model (CAPM). CAPM holds that an asset's expected return is the risk-free rate (Rf) plus the excess return on the market factor (equity risk premium, or ERP) multiplied by the asset's sensitivity to that factor (beta). The equity risk premium captures the additional returns over the risk-free rate that equity investors demand for assuming the risks associated with equities. Beta captures excess returns demanded by a diversified investor for the individual security's relative sensitivity to market returns.

$$R_e = R_f + (\text{Beta x ERP}) \quad (3)$$

Because preferred equity typically has a stated dividend rate and a higher claim on assets than common equity, the ERP for a company's preferred equity is likely to be smaller than the ERP for its common equity, resulting in preferred equity having a lower cost than common equity.

Factors influencing a company's cost of capital can either be top-down (i.e., systematic and reflected in the risk-free rate and equity risk premium) or bottom-up (i.e., company-specific and reflected in the credit spread and beta). Exhibit 1 summarizes these key factors.

Exhibit 1: Cost of Capital Factors

Top-Down, External	Bottom-Up, Company Specific
• Capital availability	• Revenue, earnings, and cash flow volatility
• Market conditions	• Asset nature and liquidity
• Legal and regulatory considerations/country risk	• Financial strength, profitability, and leverage
• Tax jurisdiction	• Security features

Top-Down External Factors

Top-down factors include macroeconomic factors such as risk-free rates, aggregate credit spreads, and the ERP.

Capital Availability

One cost of capital determinant is the general availability of capital in the company's market, region, or country. Greater capital availability typically leads to more favorable terms for corporate issuers and lower associated costs of capital.

Developed economies typically have more established, liquid capital markets with greater capital availability, more stable currencies, better property protection, and a greater strength in the rule of law than those of developing economies. Consequently, the perceived risk associated with investing in companies in more mature capital markets is lower than for companies in less mature economies. Lower perceived risk translates into lower credit spreads, ERPs, and costs of capital for companies in more mature, or developed, economies.

In regions with less developed capital markets, a lack of corporate debt markets could require companies to rely on other means for funding, such as bank loans or the shadow banking system. **Shadow banking** refers to any type of lending by financial institutions not regulated as banks.

Market Conditions

A company's cost of capital is also highly influenced by **market conditions** such as interest rates, inflation rates, and the macroeconomic environment. The credit spreads and ERPs demanded by debt and equity investors reflect overall credit and equity market conditions in addition to issuer-specific risk factors. Higher credit spreads and ERPs signify higher risk to potential new debt and equity capital providers, respectively, who demand higher returns for supplying capital.

Macroeconomic and country-specific economic factors, such as inflation rates, are reflected in benchmark interest rates and the overall level of credit spreads, which tend to widen during recessions and tighten during expansionary times. When interest

rates are relatively low and credit spreads are tight, the costs of debt and equity capital are lower. Higher relative rates of inflation, represented in a higher risk-free rate, increase the cost of capital for companies.

Similarly, the ERP demanded by investors tends to increase during recessions and decrease during expansionary times. In developed economies, more predictable and transparent monetary policy contributes to greater certainty and lower volatility in interest rates and inflation rates, lowering the cost of capital for companies.

Macroeconomic conditions over the longer term—as measured by business cycles—also affect companies' costs of capital. During expansionary times, as credit spreads narrow, or tighten, companies tend to borrow more, to fund growth and expansion or refinance existing debt, as their cost of debt becomes cheaper. Similarly, during recessionary times when credit spreads can widen, companies tend to borrow less. Finally, exchange rates also affect the cost of capital. In countries with greater exchange rate volatility and higher associated currency risk, companies have higher costs of capital.

Legal and Regulatory Considerations, Country Risk

Empirical evidence suggests a strong relationship between capital market conditions in different countries and the legal traditions followed by those countries. Countries with common law–based legal systems tend to be more mature and have stronger legal systems, as measured by greater enforceability of investor rights, than countries with civil law–based legal systems. Legal systems with greater investor protections often support more developed capital markets, providing investors with a greater sense of security with respect to their investments. Investors in mature regulatory environments offering greater investor protections typically demand lower credit spreads and ERPs, leading to lower costs of capital for corporate issuers.

Companies' costs of capital are also influenced by regulatory policies and guidelines set by government or other related entities, which can drive key financial decisions such as those related to capital structure, payout policy, and pricing. Financial institutions and utility companies, for instance, are examples of entities in highly regulated industries.

Tax Jurisdiction

Another factor in cost of capital determination is the company's marginal income tax rate. In many countries and jurisdictions, interest expense is a tax-deductible expense, effectively reducing a company's after-tax cost of debt due to associated tax savings. The higher a company's marginal income tax rate, the greater the tax benefit associated with using debt in the capital structure.

EXAMPLE 1

External Factors and Cost of Capital

GW is a junior analyst researching two companies that are in the same industry but headquartered, and seeking to raise capital, in different countries. GW gathers the following information on each country's capital market:

Feature	Country A	Country B
Credit spreads	Wide	Narrow
Volatility in interest rates	High	Low
Inflation rate	High	Low
Capital availability	Low	High
Corporate tax rate	15%	25%

1. Which country is more likely to have lower costs of capital for corporate issuers, and why?

   Solution

   Country B is more likely to have lower costs of capital for corporate issuers. All else equal, given a higher corporate income tax rate in Country B, corporate issuers in that country would benefit from a lower after-tax cost of debt. The higher the company's marginal income tax rate, the greater the attractiveness of using debt in the company's capital structure because of the associated tax savings benefit, assuming interest expense is tax deductible and the company has taxable income.
   Additionally, corporate issuers in Country B benefit from narrow credit spreads, low volatility in interest rates, and a low inflation rate, all of which contribute to lower costs of capital for corporate issuers. When interest rates and volatility are relatively low and/or credit spreads are narrow, the cost of debt and equity capital is lower than in periods of high interest rates and volatility and wide credit spreads.
   Further, the higher supply of capital available in a given market often leads to more favorable terms for corporate issuers, resulting in a lower cost of capital.

2. Country A is considering tax legislation that, if passed, would raise the corporate income tax rate from 15% to 25%. What effect is this likely to have on the cost of debt for corporate issuers in Country A?

   Solution

   The tax legislation under consideration would raise the corporate income tax rate in Country A from 15% to 25% and have the effect of lowering the after-tax cost of debt for corporate issuers in that country. As long as a company has the taxable income before interest available to offset the interest on debt, there is a benefit to the tax deductibility of interest and, therefore, a lower cost of debt.

3. What assumption are you making in drawing conclusions regarding the effect of tax legislation in Country A?

   Solution

   The assumption necessary for the tax legislation to have an effect on companies' costs of capital depends on whether the interest is deductible for tax purposes. If interest is not deductible, there would be no effect on the WACC; if interest is deductible and the company has taxable earnings, the effect is to reduce the WACC.

Bottom-Up Company Specific Factors

In addition to the external environment, a company's business model influences its cost of capital. Analysts must assess company-specific characteristics such as revenue sensitivity, earnings volatility, the nature and liquidity of assets owned or used, current and anticipated financial leverage, and features embedded in the company's debt and equity securities to determine their impact on the company's cost of capital.

A company's WACC should ultimately reflect the riskiness of the company's expected cash flow streams. Key factors that drive differences in WACC across companies include

- revenue, earnings, and cash flow volatility;

- asset nature and liquidity;
- financial strength, profitability, and leverage; and
- security features.

Revenue, Earnings and Cash Flow Volatility

Some companies, such as telecom companies and companies in the media streaming business, have subscription-based, recurring revenue that leads to fairly stable earnings and cash flow streams. A high proportion of recurring revenues for a company is generally viewed as a positive by investors because the company's revenue stream is likely to be more stable and predictable and less sensitive to the ups and downs of the macroeconomy. In contrast, companies in cyclical industries, such as those in the industrial equipment industry and companies with pay-per-use models, typically have more volatile revenues, earnings, and cash flow streams with greater sensitivity to the macroeconomic environment.

A company's business and financial risks affect the volatility of its revenues, earnings, and cash flow in that

- companies with greater **sales risk** (that is, uncertainty regarding the price and number of units sold) have greater potential revenue volatility;
- companies that generate a majority of their revenues from a few customers, and thus face **customer concentration risk**, also have higher sales risk; and
- companies with higher operating and **financial leverage** (or a higher proportion of fixed costs and debt burden) have greater earnings volatility.

For a given level of debt, a company with greater predictability and lower associated volatility in its revenues, earnings, and cash flow streams is likely to have a lower probability of default and a narrower credit spread, resulting in a lower cost of debt and equity capital.

Additionally, a company with higher environmental, social, and governance (ESG) risk is likely to have a higher cost of capital. Suppose a company is in an industry that has a significant carbon footprint, yet the company does not appear to be taking sufficient action to mitigate its environmental impact. Investors could demand a higher cost of capital for this company given the perceived financial risk from the externality, which might include mitigation costs, consumer preferences or boycotts that lower sales, and litigation costs.

Similarly, a company with known employee safety concerns is likely to be viewed as having a greater risk of lawsuits and negative customer perception, which would increase its associated risk and cost of capital demanded by investors. Companies with weak governance practices typically face higher costs of capital because of the inherent risks and costs associated with inadequate systems and poor oversight. For example, a company that has anti-takeover provisions might deter takeovers but increase management entrenchment. Rather than reflecting these ESG risks in the cost of capital, analysts can choose to adjust the future cash flow forecasts in their valuation models.

Exhibit 2 presents a summary of the relationships between business model characteristics and a company's cost of capital.

Exhibit 2: Revenues, Earnings, and Cash Flow Volatility and Cost of Capital

	Effect on Cost of Capital	
Revenue, Earnings, Cash Flow Volatility	**Lower**	**Higher**
Higher stability of revenues, earnings, and cash flows	✓	
Higher revenue concentration		✓
Higher earnings predictability	✓	
Higher operating leverage		✓
Higher financial leverage		✓
Higher ESG risks		✓

Asset Nature and Liquidity

The type and nature of a company's assets also determines its cost of capital. **Tangible assets** are physical assets such as property, plant and equipment, and inventory, whereas **intangible assets**, such as goodwill, patents, intellectual property rights, and an educated and stable employee workforce, do not exist in physical form. In general, companies with primarily tangible assets are likely to be able to access debt capital at lower cost than companies with a high proportion of intangible assets because they have the ability to pledge these assets as collateral.

Companies with primarily fungible, (i.e., interchangeable into other units of the same identity) and highly liquid assets, such as cash and marketable securities, are likely to have access to lower-cost capital than companies with mostly non-fungible, illiquid assets such as specialized property, plant, and equipment. Another factor to consider is whether the tangible assets are collateralized, supporting debt; this will have the effect of lowering the issuer's cost of debt but potentially increasing its cost of equity, given that creditors could have a prior claim on assets in the event of liquidation.

Exhibit 3 presents a summary of the relationships between a company's asset liquidity and its cost of capital.

Exhibit 3: Asset Type and Cost of Capital

	Effect on Cost of Capital	
Asset Type	**Lower**	**Higher**
Higher proportion of fungible, tangible assets	✓	
Higher proportion of liquid assets	✓	

Financial Strength, Profitability, and Financial Leverage

Another cost of capital determinant is the company's projected financial strength. Companies with weakening profitability, poor cash flow generation, low IC, or tight liquidity typically face higher costs of capital to account for their deteriorating characteristics.

When a company elects to raise debt or equity capital, the cost of that capital is highly dependent on the company's existing debt level and capital structure. Holding business risk constant, companies with higher proportions of debt in their capital structure, typically measured by leverage ratios such as a higher total debt-to-EBITDA

ratio, higher debt-to-equity (D/E) ratio, or a lower interest coverage (IC) ratio, could face higher costs of capital in the form of higher credit spreads and a higher probability of default arising from a reduced ability to service additional debt.

Exhibit 4: Financial Strength and Cost of Capital

	Effect on Cost of Capital	
Financial Strength	**Lower**	**Higher**
Higher profitability	✓	
Higher cash flow generation	✓	
Higher IC, liquidity	✓	
Higher leverage ratios		✓

Security Features

A company's cost of capital is also affected by the features embedded in the debt and equity securities it issues. An issuer's debt securities might have various features, such as a call, put, and convertible feature. These features can increase or decrease the cost of capital for an issuer depending on what benefits they offer to the investor or the company.

- ***Callability.*** Call features on debt provide a benefit to the corporate issuer. When interest rates fall, the issuer can issue new, lower-cost debt at the prevailing lower interest rates and use the proceeds to buy or "call" back the existing higher-cost debt from investors. Because investors are disadvantaged by the call feature, they demand a higher yield on a callable bond at issuance than they would on an otherwise similar option-free bond. Corporate issuers who issue callable bonds thus incur an initial higher cost or yield on debt capital than if they issued option-free bonds. However, this higher cost at issuance could be reduced in the future if interest rates fall and the issuer is able to issue new debt and call back the existing debt.
- ***Putability.*** In contrast, investors benefit from a put feature that grants them the option to sell or "put" the bond back to the issuer prior to maturity. When rates rise, this is a valuable option because investors holding the issuer's putable bond can sell the bond back to the issuer before maturity and reinvest the proceeds at the higher prevailing yields. By permitting investors to sell their bonds to the issuer before maturity, put features also allow investors to avoid the effects of company-related events, such as a leveraged buyout or an acquisition, that could increase the risk of the bond and negatively affect its price. In exchange for putability, investors accept a lower yield on a putable bond at issuance than they would receive on an otherwise similar option-free bond. However, this lower cost could increase in the future if interest rates rise and the issuer is forced to refinance at higher rates to buy back the bonds put back to the company.
- ***Convertibility.*** The conversion feature benefits investors by granting them the option to convert the bond into shares of the issuer's common stock at a specified ratio. Investors accept a lower rate of return on bonds with convertibility features than on option-free bonds.

Thus, corporate issuers who issue putable or convertible bonds will have a lower initial cost of debt capital than if they issued option-free bonds. It is important to note, however, that this lower cost at issuance can lead to higher costs later either in the form of having to issue higher-cost debt later if the bonds are put back to the issuer or, in the case of a convertible debt, in the form of equity dilution if investors ultimately convert the bonds into equity.

- ***Cumulative versus Non-cumulative***. Preferred stock can differ with respect to the policy on missed dividends. **Cumulative preferred stock** requires that the company pay in full any missed dividends (that is, dividends promised but not paid) before paying dividends to common shareholders. In contrast, non-cumulative preferred stock does not require that missed dividends be paid before dividends are paid to common shareholders; the only requirement is that dividends to common shares cannot be reinstated unless preferred stock dividends are currently being paid. In a liquidation, preferred shareholders could have a claim for any unpaid dividends before distributions are made to common shareholders. Thus, investors accept a lower rate of return on cumulative preferred share compared to otherwise similar non-cumulative preferred shares.
- ***Share Class.*** Finally, some companies might issue different classes of common stock that provide different cash flow and voting rights. In general, an arrangement in which a company offers multiple classes of common stock (e.g., Class A and Class B) typically provides one class of shareholders with superior voting or cash flow rights, or both. The cost of common equity capital can be higher for shares with inferior cash flow or voting rights.

Exhibit 5 presents a summary of the relationships between the features of a corporate issuer's securities and the company's cost of capital.

Exhibit 5: Security Features and Cost of Capital

		Effect on Cost of Capital	
	Feature	**Lower**	**Higher**
Debt			
	Callability		✓
	Putability	✓	
	Convertibility	✓	
Equity			
Preferred	Cumulative	✓	
Common	Inferior cash flow or voting rights		✓

EXAMPLE 2

Company-Specific Factors and Cost of Capital

GW next gathers the following common size balance sheet and other selected information on the two companies:

	Company 1	Company 2
Cash and equivalents	5%	10%
Marketable securities	15%	7%
Accounts receivable	12%	19%
Inventory	3%	2%
Other current assets	4%	4%
Property, plant, and equipment (net)	46%	29%
Intangible assets and goodwill	10%	24%
Other assets	5%	5%
Other Selected Information:		
Net debt/EBITDA	2.1	2.5
IC ratio	12.6	7.9
Operating leverage	Low	High
% Sales from top five customers	15%	27%
Features in existing debt securities	Put	Call

1. Which company is more likely to have a lower cost of capital? Justify your response.

Solution

Company 1 is likely to have a lower cost of capital. It has a larger percentage of cash and equivalents and marketable securities (20%) than Company 2 (17%). Company 1 also has a much lower percentage of intangible assets (10%) than Company 2 (24%). In general, companies with primarily tangible and liquid assets are likely to be able to access debt and equity capital at lower cost than companies with a high proportion of intangible assets. Company 1's higher proportion of tangible property, plant, and equipment (46%) might also allow the company to access debt capital at lower cost because of its ability to pledge these assets as collateral.

Company 1 also operates with lower financial leverage, as indicated by a lower net debt-to-EBITDA ratio (2.1 versus 2.5) and a higher IC ratio (12.6 versus 7.9). Companies with lower levels of debt, typically measured by leverage ratios such as a lower net debt-to-EBITDA ratio or a higher IC ratio, will have lower capital costs. Company 1 also operates with lower operating leverage, reflecting a cost structure that includes a lower percentage of fixed costs and a more diversified customer base (top five customers accounting for 15% of total sales versus 27% for Company 2). Companies with lower operating leverage and lower customer concentration risk tend to have greater stability in their earnings and cash flow streams and thus are likely to have lower costs of capital than companies with high volatility in these streams.

Finally, the existing debt securities of Company 1 have embedded put options that allow investors to sell the securities back to the company prior to maturity if interest rates rise. In contrast, the existing debt securities of Company 2 have embedded call options that allow the company to call the securities prior to maturity if interest rates rise. The put option is a benefit to investors, whereas the call feature is a benefit to the issuer, which leads to putable bonds having a lower cost or yield than otherwise comparable callable bonds.

Cost of Capital Factors Summary

- The costs of debt and equity capital are influenced by both top-down and bottom-up factors.
- Top-down factors include macroeconomic and political factors such as capital availability and market conditions (risk-free rates, credit spreads, and the ERP), legal and regulatory considerations such as the maturity of the regulatory environment in the country in which the company operates, and the company's tax jurisdiction.
- Key bottom-up factors include issuer-specific characteristics such as revenue and earnings volatility, the nature and liquidity of assets owned or used, financial leverage, and firm-specific risks.
- Features of debt securities, including callability, putability, and convertibility, affect the cost of debt. Features of equity securities, such as cumulative dividends, affect the costs of equity.
- Whether an analyst's approach to estimating WACC is top-down, bottom-up, or a combination, the analyst must make a number of assumptions and estimates to derive a company's WACC.

Exhibit 6 presents a summary of factors analysts should consider in determining WACC.

Exhibit 6: Analyst Checklist for WACC Determination

- **Top-down, external factors**
- Availability of debt and equity capital
- Debt market conditions (e.g., credit spreads)
- Equity market conditions (e.g., ERP)
- Business cycle (e.g., expansion versus recession)
- Legal and regulatory environment (e.g., country risk, common law versus civil law basis, maturity of regulatory environments)
- Tax jurisdiction
- **Bottom-up, company-specific factors**
- Sales risk
- Operating and financial leverage
- Debt features: type of interest, collateral, embedded options
- Equity features: seniority, voting rights
- ESG risks
- Asset tangibility and liquidity
- Tax deductibility of interest expense

KNOWLEDGE CHECK

1. Identify whether each of the following factors would positively or negatively affect an issuer's cost of capital. An issuer

   I. with a high degree of operating leverage.

   II. with relatively high earnings predictability.

III. seeking capital in a m region with a high supply of available capital.

IV. seeking capital in a region with weak legal and regulatory systems.

Solution

Factors I and IV would likely lead to an issuer having a higher cost of capital. Companies with higher operating leverage will experience greater earnings volatility for a given change in revenue than companies operating with lower operating leverage. Higher earnings volatility leads to lower earnings predictability which typically leads to a higher cost of capital. Further, issuers seeking capital in regions with weak legal and regulatory environments will face higher costs of capital to compensate investors for the weak investor protections.

Factors II and III would likely lead to an issuer having a lower cost of capital. Higher earnings predictability typically leads to a lower cost of capital. Further, a high supply of capital available in a given market often leads to more favorable terms for corporate issuers, also resulting in a lower cost of capital.

2. Identify which issuer, based solely on its given business model characteristics, would likely have a lower cost of capital and be able to support a higher proportion of debt in its capital structure. Justify your selection.

Company 1	Company 2
Pay-per-use model	Subscription model
Asset base consists largely of intangible assets	Assets base consists largely of tangible assets
60% of revenues come from largest five customers	No more than 1% of revenues come from a single customer

Solution

Company 2 is correct. Companies with subscription-based business models are typically characterized by fairly predictable revenues and earnings than companies with pay-per-use models. Further, companies with asset bases consisting primarily of tangible assets are likely to access debt and equity capital at lower costs than companies with a high proportion of intangible assets because of the lower risk inherent in tangible assets. Finally, companies that generate their revenues from highly diversified customer bases (low customer concentration risk) are likely to have lower costs of capital than companies that generate a majority of their revenues from a very few customers.

3. Identify two market conditions that are most likely favorable for companies to issue debt securities. Justify your response.

Solution

A company's cost of debt is equal to a risk-free rate plus a credit spread specific to the company. Lower interest rates, for example arising from expansionary monetary policy, and tighter credit spreads, as during periods of economic expansion, would make borrowing less costly and debt financing relatively more attractive for companies.

In contrast, when interest rates are relatively high and or more restrictive monetary policy is expected, or when spreads are wider because of weak or worsening overall economic conditions, borrowing would be more expensive for companies.

4. Describe two embedded debt features that would most likely result in a lower cost of debt capital at issuance.

   Solution

   Bonds issued with either a put feature or a convertible feature offer a benefit to investors. Putable bonds offer investors the option to sell the bond back to the company prior to maturity when interest rates rise. Convertible bonds provide investors with the option of converting the bonds into shares of the issuer's common stock prior to maturity. Consequently, bonds with these features will typically be issued at a lower initial cost or yield relative to option-free bonds.

ESTIMATING THE COST OF DEBT

3

☐ Compare methods used to estimate the cost of debt.

Analysts have several methods available to estimate the cost of debt, and the use of those methods depends on a number of factors, namely the following:

- *Type of debt*: Is the company's debt publicly traded? Non-traded or private? Bank debt? A lease?
- *Debt liquidity*: How liquid or marketable is the issued debt?
- *Credit rating*: Does the debt have a credit rating?
- *Debt currency*: In what currency is the debt denominated?

In the following sections, we examine these factors and the methods an analyst can use to estimate the cost of debt.

Traded Debt

If a company has publicly traded debt with no embedded options, otherwise known as **straight debt**, the yield to maturity (YTM) on the company's existing debt with the longest maturity could be a reasonable estimate of the company's cost of issuing straight debt. If the company has shorter-term bonds that are more liquid and trade more frequently than its longest dated bond, the YTM on the shorter-term debt might be a more reliable estimate of the company's cost of debt. Effectively, the YTM reflects the current market interest rate on the debt, which can be interpreted as the current cost of issuing new debt with similar features.

Non-Traded Debt

Most private companies, and some public companies, have non-traded or illiquid debt securities. In these cases, a quoted YTM either does not exist or is an unreliable estimate of the cost of debt because of the presence of a large liquidity premium embedded in the yield.

In such scenarios, an analyst can check whether credit ratings exist for the company's debt securities. If so, one approach to estimating a company's cost of debt is to use the yields to maturity of bonds of other companies with the same or similar maturities and credit ratings and apply matrix pricing to estimate a YTM for the subject company's bonds.

If no credit rating exists, an alternative is to use fundamental characteristics of the company, such as IC ratios or other financial leverage ratios, to deduce the likely bond rating, or a synthetic credit rating, of the company's outstanding debt. This approach requires a model that estimates a bond's rating class. Using proprietary information, bond ratings, features, and rating classes, it is possible to model the ratings classifications using statistical models.

Once a credit rating has been inferred, an analyst can use the YTM on bonds with a similar maturity and the inferred credit rating to estimate a cost of debt. Alternatively, the analyst can determine the current credit spread for that credit rating and maturity of the company's debt. This credit spread is then added to the benchmark risk-free rate to arrive at an estimate of the cost of debt for the subject company.

EXAMPLE 3

Synthetic Credit Ratings

After examining a large number of companies in the manufacturing industry with rated debt, analysts at the Brunswix Firm developed the likely range of ratios for each credit rating class, which are presented in Exhibit 7.

Exhibit 7: Rating Classes and Leverage Ratios

Rating class	IC	D/E
AAA	IC > 10 times	D/E < 35%
AA	8 < IC < 10	35% < D/E < 40%
A	5 < IC < 8	40% < D/E < 42%
BBB	3 < IC < 5	42% < D/E < 44%
BB	2 < IC < 3	44% < D/E < 50%
B	1.4 < IC < 2.0	50% <D/E < 60%
CCC	1.0 < IC < 1.4	60% < D/E < 70%
CC	0.6 < IC < 1.0	70% < D/E < 80%
C	0.3 < IC < 0.6	80% < D/E <100%
D	IC < 0.3	D/E > 100%

A Lee, an analyst at the firm, would like to use this proprietary model to predict the debt rating for Gamma Company, a manufacturing company with non-traded debt. Gamma has an IC ratio of 1.5 and a D/E ratio of 43%.

1. What rating class should Lee assign to Gamma Company's debt and why?

   Solution

   Given a conflict in potential rating that exists for Gamma, it is not clear which rating class the company should be assigned. This is because even though Gamma's IC ratio indicates that the company aligns with a B rating, its D/E ratio indicates that a BBB rating is more appropriate.

2. What else should Lee do to estimate the synthetic rating?

   Solution

   Lee should attempt to look at these ratios historically for Gamma and examine whether trends appear in these ratios that might indicate future increases or decreases. For example, if the IC ratio has been trending upward, Lee

might want to use personal judgement to suggest a BB rating for Gamma rather than the current synthetic B rating.

It should be noted that the issuer's overall credit rating might be different than the credit ratings on its issued securities. Further, some companies have different credit ratings for their own different outstanding debt issues, based on bond features. For instance, a company could have both AA- and A-rated debt, with the AA debt granting more protection to the investor through collateral, seniority, convertibility, or other features. The analyst's challenge is to estimate a cost of debt that best reflects the company's risk profile.

Bank Debt

In some countries, bank financing is a primary source of debt financing for companies and the primary source of funding for small businesses. Fixed-rate and floating-rate bank debt can be fully amortizing, partially amortizing, or non-amortizing. In general, amortizing loans typically have a lower cost of debt because of their lower default risk, given that some portion of principal is being repaid over the loan term. In contrast, non-amortizing loans, where the entire principal is repaid at maturity, similar to a bullet bond, typically have higher default risk and a higher cost of debt.

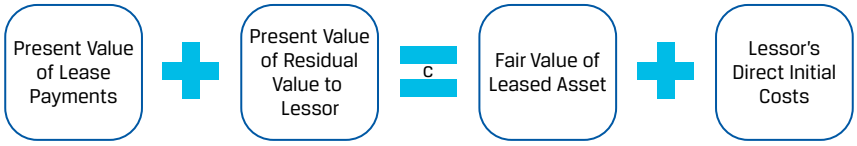
An analyst should attempt to determine the interest rate paid by the company on new bank debt financing to estimate the cost of bank debt. If a company has recently taken on new bank debt, the interest rate on that loan could be a good estimate of the company's cost of debt if the analyst believes the interest rate reflects current market conditions and the company's risk profile has not materially changed since issuance.

Again, it is important to note that an estimate of the cost of debt should be used with caution if there is any belief that market conditions or the company's risk profile has substantially changed since its issuance.

Leases

Some companies use lease financing to acquire assets such as property, aircraft, and other large-ticket capital assets. A **finance (or capital) lease** is an example of an amortized loan. In contrast, operating leases involve expenses, and the property is not capitalized on the lessee's financial statement. A finance lease has properties similar to the ownership of the leased asset: use of the asset, payment(s), and the lessee owns the asset at the end of the lease term or has an option for asset purchase. The interest rate or the implicit lease rate in a finance lease can be inferred from the lease payments and the fair value of the leased asset, considering the residual value of the asset and direct costs of the lessor. As a type of secured loan, leases often have lower associated borrowing costs for a company than if the company were to borrow in the capital markets on an unsecured basis to purchase the asset outright.

According to IFRS-16 and ASC-842, the interest rate, or the **rate implicit in the lease (RIIL)** is the discount rate that equates the sum of the present value of the lease payments and the present value of the residual value with the sum of the fair value of the leased asset and the lessor's direct costs (e.g., legal fees) such that:



However, the present value of the residual value and the lessor's direct initial costs are often not known to the lessee (company) or analyst. If unknown, the **incremental borrowing rate (IBR)**, which is the rate of interest the company would pay to borrow

using a collateralized loan over the same term, might be used. If this rate is not known, the analyst might use the non-traded debt estimation method. In most public company filings, however, lessees will disclose the interest rates for their lease liabilities.

Under some tax jurisdictions, a finance lease is considered a purchase (and therefore, a sale from the point of view of the lessor), and interest expense is tax deductible. In this case, an adjustment is made to the cost of debt to put it on an after-tax basis.

EXAMPLE 4

Leasing Costs

G&S Airlines is considering whether to borrow money or use cash on hand (equity) to purchase or lease a new aircraft needed for its business. The company's unsecured IBR is 6%, and its cost of equity is 11%.

The lease terms the company has negotiated are for a 15-year lease with annual payments (PMT) of EUR9.0 million at the end of each year. The leased asset has a fair value (FV) of EUR100 million. The lessor would incur a cost of €5 million at the time of the lease agreement. The residual value of the leased asset at the end of 15 years is EUR10 million.

1. What is the implied interest cost of this lease?

Solution

The cash flows associated with the lease are as follows:

	0	1	2	3	...	15
Lease PMT		€9.0	€9.0	€9.0		€9.0
Residual value						€10.0
FV of leased asset	–€100.0					
Lessor direct costs	–€5.0					
Net cash flows	–€105.0	€9.0	€9.0	€9.0		€19.0

Solving for the discount rate that equates the initial net cash outflow of €105.0 million to the present value (PV) of the net cash flows beyond the initial year results in a rate of 4.08%.

Using a calculator,

PMT = 9.0, PV = –105.0, N = 15, FV = 10.0

Using Microsoft Excel,

```
RATE(15,9.0,-105.0,10.0,0)
```

Using Python,

```
import numpy_financial as npf
r = npf(15,9.0,-105.0,10.0,0)
print(r)
```

Using R,

```
library(FinCal)

discount.rate(15,-105.0,10.0,9.0,0)
```

2. What factors should G&S consider in the decision to buy outright versus leasing?

   Solution

   At 4.08%, the leasing option is lower cost and lower risk than the company's unsecured IBR of 6%. It is also lower in cost than issuing equity, which would be dilutive. Leasing avoids the risks associated with ownership. However, G&S would have increased leverage as a result of the lease transaction.

International Considerations

When being estimated for international markets, the cost of debt should reflect the currency in which the company's cash flows occur. One approach to estimating the cost of debt for an entity in a less mature, foreign market is to add a country risk premium to the debt's yield. In this case, a **country risk rating (CRR)** can be used.

A CRR is a rating applied to a country based on the assessment of risk pertaining to that country, in areas such as

- economic conditions,
- political risk,
- exchange rate risk, and
- securities market development and regulation.

Risks are often assessed relative to a country's sovereign debt risk. Sovereign risk is a component of country risk and relates to a country's likelihood of defaulting on its debt obligations, whereas country risk includes the factors beyond the sovereign risk, such as political stability, economic competitiveness, and human development. This information is then used to adjust the cost of debt for a subject company. The ratings can be similar to credit ratings—that is, AAA, AA, and so on—or might have a numeric range (e.g., 0 to 10, 0 to 100) using a benchmark country. For each rating class or numeric score, the median interest rate can be calculated. By comparing the median interest rate with the benchmark country's rate, the country risk premium can be derived.

Consider the chart of rates and country risk premiums in Exhibit 8, using Country A as the benchmark (therefore, a 0% country risk premium). Country C has a risk rating of 2 and a median interest rate of 4.5%. Country C's country risk premium is therefore 0.5% (or 4.5% – 4.0%).

Exhibit 8: Country Risk Premiums

Country	*Rating (1 = least risk, 10 = most risk)*	*Median interest rate*	*Country risk premium*
A	1	4.0%	0.0%
B	5	7.0%	3.0%
C	2	4.5%	0.5%
D	8	15.5%	11.5%

Country	Rating (1 = least risk, 10 = most risk)	Median interest rate	Country risk premium
E	7	9.5%	5.5%
F	6	7.5%	3.5%

EXAMPLE 5

Cost of Debt Summary

- The cost of debt is affected by the type of debt, the liquidity of the debt issue, the debt's credit rating, and the currency in which the debt is issued.
- Calculating the cost of traded debt is relatively uncomplicated, especially for straight debt, but determining the cost of non-traded debt requires using approaches such as a synthetic credit rating.
- Determining the cost of bank debt and leasing requires information for the calculation of the effective cost of this financing.
- The cost of debt in international markets can be estimated using CRRs that reflect economic, political, and exchange rate risk, as well as information about the financial markets and regulation.

1. An analyst is estimating the cost of debt for a company that leases its assets. What information does the analyst need to estimate the company's cost of debt?

   Solution

   To estimate the cost of debt, the analyst will need to know, or estimate
   - lease payments,
   - the residual value of the leased asset,
   - the fair value of the leased asset,
   - lessor direct costs, and
   - the term of the lease.

2. If there is a limit on the monetary amount of the interest deduction for tax purposes, how would this affect a company's cost of debt?

   Solution

   If a company has already reached the limit on interest that might be tax deductible, the cost of debt is not adjusted for the tax rate. This is because the cost of debt is the cost of raising additional debt, and no further tax benefit can be realized by the company.

3. An analyst is estimating the cost of debt for a company with outstanding debt that is not traded. Which methods, if any, can be considered for estimating the company's cost of debt?

   Solution

   Potential methods include the following:
   Matrix pricing – Identifying other debt that is publicly traded with similar features in maturity, features, and credit quality.

Synthetic rating – Using the companies' fundamentals, such as IC ratios and other leverage ratios, to estimate a credit rating class. Once a credit rating has been inferred, an analyst can simply use the YTM on bonds with a similar maturity and credit rating to estimate a cost of debt.

THE ERP

4

☐ explain historical and forward-looking approaches to estimating an equity risk premium

The ERP represents the expected incremental return that investors demand as compensation for holding risky equity securities rather than a risk-free asset. It is the difference between the expected return on equities and a benchmark risk-free rate.

Even for long-established developed markets, estimating the size of the ERP is challenging and subject to estimation error, resulting in differing investment conclusions among analysts.

Two broad approaches used to estimate the ERP are

- the *historical approach (ex-post)*, which uses backward-looking historical data to estimate the ERP, and
- the *forward-looking approach (ex-ante)*, which uses forward-looking expectational data.

Given that both methods are used in practice, analysts should be aware of their limitations and how their conclusions can be affected by estimation error.

Historical Approach

A historical approach is often used when reliable long-term equity return data are available. A historical ERP estimate is typically calculated as the mean value of the difference between a broad-based equity market index return and a government debt return, as a proxy for the risk-free rate, over some sample period.

In using a historical estimate to represent the ERP going forward, the analyst is assuming that returns are stationary and that markets are relatively efficient, so over the long term, average returns should be an unbiased estimate of what investors expected to earn. An analyst therefore must assess whether historical returns in the market of interest provide useful information about future expectations before using the historical approach.

An analyst has four key decisions in the development of a historical ERP:

1. What equity index best represents equity market returns?
2. What time period is best to calculate the estimate?
3. What measure for mean returns should be used?
4. Which proxy for the risk-free rate is best?

Equity Index Selection

The analyst should select an equity index that accurately represents the typical returns earned by equity investors in the market. Broad-based, market-value-weighted indexes are typically chosen as representative. Examples include the S&P 500 Index, Russell 3000 Index, MSCI EAFE Index, Australia All Ordinaries, and the Shanghai Composite Index.

Time Period

Deciding on the best estimation time period will involve trade-offs. One method uses the longest reliable return series available, but this is problematic because the distant past might not be representative of the current market environment. In addition, research shows significant evidence of non-constant underlying return volatility in many equity markets. This fluctuating volatility has less of an effect on estimates from a long data series; however, this assumes the ERP has not experienced any permanent changes in its level.

Using a shorter data period avoids using less-representative periods contained in longer data series and makes it more likely that the ERP estimate is representative of the current market environment. The trade-off, however, is that using a shorter time period increases the likelihood of greater noise in the ERP estimate. More specifically, a shorter estimation period, such as one covering only a portion of a business cycle or a period of disruption such as the global financial crisis or the COVID-19 pandemic, might not be sufficiently robust to forecast future returns. In the case of the latter, a time period that does not include the market disruption is needed.

A similar issue arises when a series of strong market returns has increased historical mean ERP estimates, making it likely that the historical estimate could be overestimating the forward-looking ERP. In general, analysts tend to favor the use of a longer time period, given the reduction in the standard error of the ERP estimate that occurs as the estimation period lengthens.

Selection of the Mean Type

An analyst using the historical approach must also decide on the mean type to use in the estimation, the choices being to use either a geometric mean or an arithmetic mean in calculating the average difference between the equity market return and the benchmark risk-free rate. Exhibit 9 summarizes the advantages and disadvantages of each.

Exhibit 9: Arithmetic Mean Return versus Geometric Mean Return

Mean Type	Advantages	Disadvantages
Arithmetic Mean	• Easy to calculate • Considers all observations in the time series	• Sensitive to extreme values • Overestimates the expected terminal value of wealth
Geometric Mean	• Considers all observations in the time series • Gives outliers less weight • Estimates the expected terminal value of wealth	

The arithmetic mean return as the average one-period return best represents the mean return in a single period. Popular models for estimating required return—the capital asset pricing model and multifactor models—are single-period models, so the arithmetic mean, with its focus on single-period returns, is a model-consistent choice.

The geometric mean return represents the compound rate of growth that equates the beginning value to the ending value of one unit of money initially invested in an asset.

The geometric mean is generally preferred because it is less sensitive to outliers and is also consistent with expected terminal wealth estimates. However, both mean types are used in practice.

Selection of the Risk-Free Rate Proxy

Lastly, the analyst must decide on a proxy for the risk-free return. Choices include a short-term government debt rate, such as a USD or EUR Treasury-bill rate, or the YTM on a long-term government bond. Given that they have less (near zero) default risk, government bonds are preferred over even the highest-rated corporate bonds. Exhibit 10 summarizes the advantages and disadvantages of using a short-term rather than long-term proxy.

Exhibit 10: Short- versus Long-Term Risk-Free Rate Proxy

Risk-Free Proxy	Advantages	Disadvantages
Short-term government bill rate	• The rate is an exact estimate of the risk-free rate, assuming no default.	• The rate does not closely match the duration of an infinite-life equity security.
Long-term government bond YTM	• The YTM more closely matches the duration of an infinite-life equity security.	• The YTM is not a completely risk-free return at the time of purchase because of unknown coupon reinvestment rates.

Some analysts prefer to use a very short-term government bond rate as a proxy, such as a three-month benchmark government bond rate, with the rationale being that a short-term government bond is typically a zero-coupon bond with a return known up front (at the time of purchase) that is not dependent on the reinvestment of coupons. The stated yield is truly the return received by the investor, assuming no default. The disadvantage of using the short-term government bond is that it does not closely match the duration of an infinite-life equity security or most investment horizons.

Industry practice has tended to favor the use of a long-term government bond yield as the risk-free rate proxy. The actual return an investor receives from owning the long-term government bond is not known up front at the time of purchase; the actual return depends, in part, on the rates of return earned from coupon reinvestment during the life of the bond. This is a disadvantage of using the YTM on a long-term government bond as a proxy: it is not a risk-free, known return at the time of purchase. Regardless, the current YTM on a long-term government bond is still used by analysts as an approximation for the bond's expected return.

Limitations of the Historical Approach

Although popular in practice, the historical approach is subject to several limitations, including the following:

- ERPs can vary over time. If the ERP has shifted to a permanently different level in recent years, estimates based on a long time series of historical data are not representative of the future ERP.
- **Survivorship bias** tends to inflate historical estimates of the ERP. This bias is present in equity market data when poorly performing or defunct companies are removed from index membership, so that only relative winners remain represented in index performance.

EXAMPLE 6

ERP Estimation Using the Historical Approach

1. Identify a reason why using a very short-term government bond rate to estimate a historical ERP might be justified. Explain its disadvantage.

   Solution

   The justification for using a very short-term government bond to estimate an ERP using the historical approach is that unlike a long-term government bond, a short-term government bond is typically a zero-coupon bond with a return known up front and is not dependent on the reinvestment of coupons. Thus, its stated yield is truly the return that the investor receives, assuming no default; this is not the case for the YTM on a long-term government bond. The disadvantage of using the short-term government bond is that it does not match the duration of an infinite-life equity security.

2. Describe a key assumption an analyst must make to justify the use of a historical ERP to estimate a required return using an asset pricing model.

   Solution

   An analyst who uses a historical ERP to estimate a required return using an asset pricing model is assuming that returns are stationary—that is, the parameters that describe the return-generating process are the same in the future as they were in the past.

3. Explain why using the geometric mean might be preferred over the arithmetic mean in the historical approach to estimating the ERP.

   Solution

   Estimated ERPs using geometric means are less sensitive to outliers than those using the arithmetic mean. Further, using the geometric mean to compound wealth forward estimates the expected terminal value of wealth.

D Smith and J Müller are equity analysts at Odyssey Investments. Smith and Müller estimate different ERPs using the following assumptions:

	Smith	Müller
Benchmark index	Russell 3000	S&P 500
Sample time period	35 years	65 years
Risk-free rate proxy	30-year Treasury bond	3-month Treasury bill
Mean measure used	Arithmetic	Geometric
Average benchmark index return	12.96%	11.23%
Average risk-free rate over sample period	6.25%	3.11%

4. Calculate two estimates of the ERP using both sets of assumptions.

   Solution

   The estimate of the ERP using Smith's assumptions is

   $$12.96\% - 6.25\% = 6.71\%.$$

   The estimate of the ERP using Müller's assumptions is

11.23% – 3.11% = 8.12%.

5. Explain why both estimates could be valid.

Solution

Even though the two estimates of the ERP are different, they might both be valid. The two analysts simply made different choices of the four key decisions in estimating the historical ERP to arrive at their different estimates. This example demonstrates that differences in underlying analyst assumptions can yield different ERP estimates with corresponding valuation implications.

Forward-Looking Approach

A forward-looking approach is consistent with the idea that the ERP depends strictly on future expectations, given that an investor's returns depend only on the investment's expected future cash flows. The ERP should therefore be based only on expectations for economic and financial variables that affect future cash flows. In a forward-looking approach, the ERP is estimated using current information and expectations concerning such variables. These estimates are often called **forward-looking estimates** or ex ante estimates. We provide an overview of three forward-looking estimation methods:

- Survey-based estimates
- Dividend discount models
- Macroeconomic modeling

Survey-Based Estimates

One forward-looking approach is to gauge expectations by asking people what they expect. Survey estimates of the ERP involve asking a sample of people—frequently, experts—about their expectations for the ERP, or for capital market expectations from which the ERP can be inferred. In general, such surveys reveal that the ERP is much higher in developing markets when compared to developed markets. One issue with using surveys to estimate the ERP is that these estimates tend to be sensitive to recent market returns.

Dividend Discount Model Estimates

The second approach involves use of a **dividend discount model (DDM)**, which expresses the value of a stock, V_0, as the present value of future expected dividends. A simplified form of a DDM used to estimate a forward-looking ERP is based on an expected constant earnings growth rate and known as the **Gordon growth model**:

$$V_o = \frac{D_1}{r_e - g}. \tag{4}$$

Solving for the required return on equity (r_e) yields

$$r_e = \frac{D_1}{V_0} + g, \tag{5}$$

where $\frac{D_1}{V_0}$ is an expected dividend yield, and g is the expected earnings growth rate.

Broad-based equity indexes typically have an associated dividend yield, and the year-ahead dividend (D_1) for the index might be fairly predictable. In addition, the expected earnings growth rate, g, can be inferred based on expectations such as consensus analyst expectations of the earnings growth rate for an equity market index. These expectations can be top-down or bottom-up generated forecasts.

Subtracting the current risk-free rate from this expected market equity return from Equation 6 yields a forward-looking ERP estimate:

$$\text{ERP} = E\left(\frac{D_1}{V_0}\right) + E(g) - r_f. \tag{6}$$

Note that an underlying assumption of the constant growth DDM is that earnings, dividends, and prices will grow at the same rate, resulting in a constant P/E. If, however, the analyst believes this is not likely to be the case going forward, an adjustment would be needed that reflects anticipated P/E multiple expansion or contraction. This is because from a given starting market level associated with a given level of earnings and P/E, the return from capital appreciation cannot be greater (or less than) than the earnings growth rate unless the P/E increases (or decreases). P/E increases (or decreases) can result from an increase (or decrease) in the earnings growth rate or a decrease (or increase) in risk. Some analysts also include the aggregate amount spent on buybacks by the index constituent companies in the dividend yield term to reflect total payout. When doing so, an analyst should also consider the degree to which buybacks might alter growth rates in earnings and dividends.

EXAMPLE 7

ERP Estimation Using the Constant Growth DDM

An analyst is estimating a forward-looking ERP for the UK market using the FTSE 100 Index. The analyst gathers the following information:

Market Index	FTSE 100 Index	Analyst Forecast Range
FTSE 100 Index forward dividend yield, $E\left(\frac{D_1}{V_0}\right)$	1.94%	1.5% to 3.5%
FTSE 100 Index expected long-term earnings growth rate, $E(g)$	5.0%	4.0% to 6.0%
Long-term Gilt bond yield, (r_f)	1.63%	1.5% to 2.5%

1. Calculate an estimate of the ERP using the constant growth DDM.

   Solution

   The UK ERP estimate is 5.31%, or

   ERP = 1.94% + 5.0% – 1.63% = 5.31%.

2. The analyst is developing a sensitivity analysis for the ERP. What is the effect of allowing for the variations in analyst forecasts in a simulation of the ERP?

   Solution

   At the forecast extremes, the ERP ranges from 1.5% + 4% – 2.5% = 3% to 3.5% + 6% – 1.5% = 8%. The analyst might want to simulate the dividend yield and the long-term bond yield based on this range, using information about distribution among the analysts as part of the simulation.

For rapidly growing economies, an analyst might assume multiple earnings growth stages. Applying the constant growth DDM in this situation, the analyst might forecast

1. a *fast growth stage* for the aggregate of companies included in the subject country equity index, followed by

2. a *transition growth stage* in which growth rates decline, and
3. a *mature growth stage* characterized by growth at a moderate, sustainable rate.

The required rate of return, r_e, is calculated as the rate that equates the sum of the present values for each stage to the equity index price, or

$$\text{Equity index price} = PV_{0,Stage1} + PV_{0,Stage2} + PV_{0,Stage3}, \quad (7)$$

where the $PV_{0,Stage1}$ is the value at time 0 (that is, today) of the Stage 1 dividends, and $PV_{0,Stage\,2}$ and $PV_{0,Stage\,3}$ are similarly for the other two stages. The calculation requires solving for the internal rate of return. Once we have this rate, the chosen proxy for the risk-free rate is then subtracted to arrive at the ERP.

Macroeconomic Modeling

ERP estimates derived from macroeconomic models rely on a number of forecasted economic variables such as inflation and expected growth in real earnings per share. Using relationships between macroeconomic and financial variables in equity valuation models, analysts can develop ERP estimates. These models might be more reliable when public equities represent a relatively large share of the economy, as in many developed markets.

One such model is the Grinold-Kroner (2001) decomposition of the return on equity:

$$\text{ERP} = [\text{Dividend yield} + \text{Expected capital gain}] - E(r_f)$$

or

$$\text{ERP} = [\text{DY} + \text{Expected repricing} + \text{Earnings growth per share}] - E(r_f). \quad (8)$$

Dividend yield, DY, reflects the expected income component of the equity investment. The expected repricing term relates to expected changes in P/E ratios within the market being evaluated. Earnings growth per share can be expressed as

$$\begin{aligned}&\text{Earnings growth per share}\\ &= \text{Expected inflation} + \text{Real economic growth} - \text{Percent change in shares outstanding}\\ &= i + g - \Delta S. \quad (9)\end{aligned}$$

Empirical studies suggest that ΔS, the change in shares outstanding or the dilution effect, varies significantly across countries for a variety of reasons. We assume that $\Delta S = 0$ here, but there is a further discussion in the economic growth module regarding ways to model this for a particular market.

$$\text{ERP} = [\text{DY} + \Delta(\text{P/E}) + i + g - \Delta S] - E(r_f). \quad (10)$$

The Grinold-Kroner model effectively builds the expected market equity return as a function of five factors. Note that this model explicitly considers expected changes in the P/E ratio of the market mentioned in our discussion of the DDM. The following table summarizes the factors, and their common proxies, in the Grinold-Kroner (2001) decomposition of the return on equity.

Factor	Symbol	Common Proxy
Expected income component	DY	Broad-based market index dividend yield
Expected growth rate in the P/E	ΔP/E	Analyst adjustment for market over or under valuation (commonly = 0)
Expected inflation	i	(nominal yield less real yield) for similar maturity security

Factor	Symbol	Common Proxy
Expected growth rate in real earnings per share	g	Real GDP growth
Expected percent change in shares outstanding	ΔS	Depends on market and time period

An analyst can compare the nominal and real yields for similar-maturity government benchmark bonds to estimate the expected inflation rate. For example, expected inflation can be estimated as the ratio of the yield on a US Treasury bond and a similar maturity Treasury Inflation-Protected Security (TIPS):

$$i = \frac{1 + \text{YTM}_{Treasury\ bond}}{1 + \text{YTM}_{TIPS}} - 1 \approx \text{YTM}_{Treasury\ bond} - \text{YTM}_{TIPS}. \quad (11)$$

EXAMPLE 8

ERP Estimation Using the Forward-Looking Approach

1. If the yield on a 10-year Treasury bond is 2.3% and the yield on a similar maturity, inflation-protected Treasury bond is 0.66%, what is the implied inflation rate?

   Solution

   $i = \frac{1.023}{1.0066} - 1 = 0.016$, or 1.6%.

An analyst is estimating a forward-looking ERP for a market based on the following information:

Input	Scenario 1	Scenario 2
r_f	2.5%	3%
i	1.6%	3%
g	3%	2%
Δ(P/E)	0	1%
DY	2.2%	2%
ΔS	–0.7%	0

2. Using the Grinold-Kroner model, calculate estimates of the ERP under Scenarios 1 and 2.

   Solution

   Using the Grinold-Kroner forward-looking approach, in Scenario 1, the ERP estimate is 3.6%, or

   $$\text{ERP} = \{2.2 + 0 + [1.6 + 3.0 - (0.7)]\} - 2.5 = 5.0\%.$$

   Using the Grinold-Kroner model, the ERP estimate in Scenario 2 is 5.0%, or

   $$\text{ERP} = \{2.0 + 1.0 + [3.0 + 2.0 - 0.0)]\} - 3.0 = 5.0\%.$$

   The premium of 5.0% compensates investors for average market risk, given expectations for inflation, real earnings growth, P/E growth, and anticipated income.

3. How does the ERP change when expected inflation increases? When expected income declines?

   Solution

   Increases in expected inflation generally do not affect the ERP because both i (which is added) and R_f (which is subtracted) increase by the same amount. In contrast, a decrease in expected income decreases ERP by decreasing DY.

4. Under what circumstances is it not appropriate to use the Grinold-Kroner model?

   Solution

   The model is not appropriate for estimating the ERP in a developing country where the stock market is not a sufficiently large portion of the economy.

Limitations of the Forward-Looking Approach

Relative to historical estimates, ex ante estimates are likely to be less subject to non-stationarity or data biases. Limitations of forward-looking approaches are listed in the following table:

Forward-Looking Approach	Limitation
Surveys	• Estimate data can be subject to sampling and response biases, and to behavioral biases such as **recency bias** (placing more relevance on recent events) and **confirmation bias** (paying more attention to information that supports one's opinions and ignoring the rest).
DDM	• Assumes constant P/E. where growth in earnings, dividends, and prices are different from one another; an adjustment is needed to reflect P/E multiple expansion or contraction.
Macroeconomic models	• Financial and economic models could have modeling errors or behavioral biases in forecasting.

EXAMPLE 9

ERP Summary

- The ERP represents the expected incremental return that investors demand as compensation for holding risky equity securities rather than a risk-free asset.
- Two broad approaches are used to estimate the ERP: the historical approach, which uses backward-looking historical data to estimate the ERP, and the forward-looking approach, which uses forward-looking, expectational data to estimate the ERP.
- When estimating the ERP using the historical approach, an analyst has four key decisions to make regarding the following choices: (1) equity index, (2) estimation time period, (3) mean measure, and (4) proxy for the risk-free rate.
- Care must be taken in using historical estimates because the ERP can vary over time, and there is a possibility of survivorship bias in the estimate.

- ERP using the forward-looking approach include (1) survey-based estimates, (2) DDM-based estimates, and (3) estimates derived from macroeconomic models.
- Limitations to using forward-looking approaches include sampling, response, and behavioral biases (recency and confirmation biases) associated with survey estimates, the assumption of a constant P/E in DDM estimates, and modeling errors and behavioral biases in macroeconomic estimates.

1. Discuss the four key decisions that an analyst must make to estimate an ERP using the historical approach.

   Solution

   The four key decisions that an analyst must make to use the historical approach are as follows:

   - Which equity index to use to represent equity market returns
   - What time period to use for estimating the ERP
   - Which mean measure to use
   - What proxy to use for the risk-free return

2. Justify the use of a long-term government bond yield as a proxy for the risk-free rate in estimating an ERP using the historical approach.

   Solution

   Even though the YTM on a long-term government bond yield is not in fact risk free because of the coupon reinvestment risk over the life of the bond, the current YTM on a long-term government bond can still be used as an approximation for the expected return on the bond.

3. Calculate estimates of the ERP for a particular market using both the historical approach and the forward-looking approach using the following information:

Expected inflation	1.9%
Expected growth in the P/E	–1.2%
Expected income component	1.8%
Expected growth in real earnings per share	2.7%
Expected change in shares outstanding	0.0%
Current three-month government bond yield	0.96%
Long-term geometric average return of market equity index	9.96%
Long-term geometric average return of short-term government bond	3.15%

   Solution

   The ERP using the historical approach is calculated as the mean value of the difference between a broad-based equity market index return and a government debt return. Therefore, the ERP using the historical approach is calculated as 9.96% – 3.15% = 6.81%.
   The ERP using the forward-looking approach is calculated as
   ERP = {1.8 – 1.2 + (1.9 + 2.7 – 0.0)} – 0.96
   ERP = 5.20 – 0.96 = 4.24%.

4. Discuss limitations of using macroeconomic models to estimate a forward-looking ERP.

   Solution

   ERPs derived from macroeconomic models rely on a number of forecasts of economic variables such as inflation and expected growth in real earnings per share. These forecasts are often generated using financial and economic models that can be subject to potential modeling errors or behavioral biases in forecasting.

THE COST OF EQUITY (REQUIRED RETURN ON EQUITY)

5

☐ compare methods used to estimate the required return on equity

Upon determining an ERP, analysts can then go on to estimate a company's required rate of return for use in a WACC calculation. To estimate the required rate of return on equity, analysts have a variety of methods available, which include

- DDM,
- the bond yield plus risk premium build-up method, and
- risk-based models.

Estimating the required rate of return for private and international companies adds further complexity for an analyst.

DDM

One method of estimating a company's required return on equity is to apply the constant growth DDM used earlier in estimating a forward-looking ERP. That is, we apply this model to a particular subject company given a forecast of its expected future dividend D_1, expected growth rate in dividends g, and current share price P_0, or

$$r_e = \frac{D_1}{P_0} + g. \tag{12}$$

For example, using the constant growth model and given the following inputs for Company X,

Company X	Definition	Value
Current share price	P_0	€40
Expected future dividend	D_1	€1.04
Expected (perpetual) growth rate in dividends	g	4%

the cost of equity estimate is 6.6%, or

$$r_e = \frac{€1.04}{€40.00} + 0.04 = 0.066.$$

Using a DDM for r_e estimation is straightforward and based on the logic that the share price of stock reflects the present value of future dividends and the relevant cash flow to equity holders is the dividend payment. However, it requires that the company's shares be publicly traded and that the company pays dividends that are stable and predictable.

In equity valuation, it is common to build a multiyear financial forecast inclusive of a forecasted share price at the end of the forecast period. Using the DDM, a company's required return on equity can also be estimated by solving the following equation for r_e:

$$P_0 = \left[\sum_{t=1}^{n} \frac{D_t}{(1+r_e)^t}\right] + \frac{P_n}{(1+r_e)^n}. \quad (13)$$

For example, suppose we have the following information:

Year	0	1	2	3	4
Dividend		$1.00	$1.25	$1.35	$1.50
Stock price	$40.00				$45.00

Given a current share price of USD40, the required rate of equity can be solved for by using a calculator or software tools to arrive at a rate of 6.015%. This calculation incorporates not only the near-term dividend forecast but also the forecast of the share price at some period into the future (i.e., USD45).

TOOLKIT

Using Microsoft Excel,

```
=IRR({-40,1,1.25,1.35,46.5})
```

Using Python,

```
import numpy as np
irr = np.irr([-40,1,1.25,1.35,46.5])
```

Using R,

```
library(jrvFinance)
irr(c(-40,1,1.25,1.35,46.5))
```

Bond Yield Plus Risk Premium Approach

Recall that the **bond yield plus risk premium (BYPRP) approach** is another means of estimating the required return on equity for a company that has public debt. The BYPRP approach estimates a company's required return on equity as:

$$r_e = r_d + \text{RP}, \quad (14)$$

where r_d is the company's cost of debt (typically proxied by the YTM on the company's long-term debt), and RP is a risk premium to compensate equity investors for additional risk relative to the risk of investing in the company's debt securities.

The challenge to the BYPRP approach is in estimating RP. One common approach to estimating this risk premium involves using the historical mean difference in returns between an equity market index and a corporate bond index, similar to the process of estimating a historical ERP estimate. This difference yields a historical estimate of the average extra return earned by equity investors relative to corporate bond investors.

Exhibit 11 summarizes key advantages and disadvantages of the BYPRP approach.

Exhibit 11: BYPRP Approach: Advantages and Disadvantages.

Advantages	Disadvantages
• Estimating a company's cost of debt provides a starting point estimate of the return demanded by that company's debt investors.	• Determination of RP is relatively arbitrary. • Approach requires company to have traded debt. • If the company has multiple traded debt securities, each with different features, there is no prescription regarding which bond yield to select. Common practice is to use the company's long-term bond YTM.

EXAMPLE 10

Cost of Equity Estimation using the BYPRP Approach

An analyst estimates a required return on equity for a company using the BYPRP approach. The analyst estimates the yield on the company's bonds as 4.3% and a historical risk premium of 6.1% earned by equity investors relative to long-term corporate bond yields.

1. Calculate an estimate of the required return on equity for the company using the BYPRP approach.

   Solution

   The required return on equity for the company using the BYPRP approach is estimated at 10.40%, calculated as $r_e = 0.043 + 0.061 = 0.1040$.

2. What are potential considerations associated with this method?

   Solution

   Considerations include the following:

   - Using historical data might not be appropriate if the risk premiums are not stationary.
   - The company might have no traded debt or might have multiple issues of traded debt with different yields.

Risk-Based Models

Risk-based models estimate the required return on equity as the sum of the compensation for the time value of money and compensation for bearing risk, or

$$r_e = \text{Compensation for the time value of money} + \text{Compensation for bearing risk.}$$

Several types of risk models are used to develop estimates for r_e, their primary difference being how they model compensation for bearing risk. One class of risk models is factor models, such as the **capital asset pricing model (CAPM)** and the Fama–French models we discuss here. Other factor models include theoretically derived models, statistical factor models, fundamental factor models, and macroeconomic factor models.

CAPM

Recalling the single-factor CAPM, given an estimate of a company's beta (β), the risk-free rate, and the ERP, a company's required return on equity can be estimated as

$$r_e = r_f + \hat{\beta}(\text{ERP}), \tag{15}$$

where $\hat{\beta}$ is a measure of the sensitivity of the company stock's returns to changes in the ERP.

The **market model**, which replaces expected returns on the company and market with their actual historic returns, is commonly used to estimate the company's beta, regressing the company *i*'s equity excess returns, $r_{i,t}$, over the risk-free rate, $r_{f,t}$, against the excess returns of an equity market index, $r_{m,t}$:

$$(r_{i,t} - r_{f,t}) = b_0 + b_1(r_{m,t} - r_{f,t}) + \varepsilon_t. \tag{16}$$

The estimate of b_1, $\hat{b}_1$,is used as a proxy for β_i in Equation 17. A variation of the market model is to not subtract the risk-free rate from the stock's returns and the market returns.

Using this approach, the analyst should consider the following:

- What is the most appropriate equity market index?
- What period was used to estimate beta? As with choosing the time period when estimating a historical ERP, the analyst should seek a balance between sufficient data to develop a robust forecast and using data from too far back in time that might not be representative for the company's stock going forward.
- What proxy was used for the risk-free rate? In an environment of a normal upward-sloping yield curve, using the short-term benchmark government bill rate will yield a meaningfully lower cost of equity estimate than if the long-term government bond YTM is used, particularly if the yield curve is steep.

Even if a company is not publicly traded, it is still possible to estimate the cost of equity using CAPM. Recall that the beta of a comparable, publicly traded company with similar business risk can be estimated and then adjusted for the differing financial leverage of the company to arrive at a beta estimate for the subject company. This is done by "unlevering" the beta of the comparable company to arrive at a beta for a company with no debt in its capital structure and then "re-levering" it to adjust for the debt of the subject company. The estimated beta is then used in the CAPM to estimate a cost of equity for the subject company.

Fama–French Models

The **Fama–French models** are an alternative set of factor models to estimate a company's required return on equity. In the Fama–French three-factor model, in addition to the single market factor, equity returns can be explained by the size of the company—a size factor measured by market capitalization—and the relationship between the book value and equity value of a company's equity, termed the value factor. Using this three-factor model, a company's excess return on equity is calculated as

$$r_e = r_f + \beta_1 \text{ERP} + \beta_2 \text{SMB} + \beta_3 \text{HML}, \tag{17}$$

where SMB is the size premium, equal to the average difference in equity returns between companies with small and large capitalizations, and HML is the value premium, equal to the average difference in equity returns between companies with high and low book-to-market ratios.

The five-factor Fama–French model adds two other factors—a profitability factor (RMW) and an investment factor (CMA):

$$r_e = r_f + \beta_1 \text{ERP} + \beta_2 \text{SMB} + \beta_3 \text{HML} + \beta_4 \text{RMW} + \beta_5 \text{CMA}, \quad (18)$$

where RMW is the profitability premium, equal to the average difference in equity returns between companies with robust and weak profitability, and CMA is the investment premium, equal to the average difference in equity returns between companies with conservative and aggressive investment portfolios.

In essence, the Fama–French models are an extension of the CAPM that add additional factors to explain excess returns. Like in the CAPM, the estimated slope coefficients in the Fama–French models represent the sensitivity of a stock's returns to the factors. Estimating the Fama–French models is similar to the CAPM: the company's excess equity returns are regressed on the factors to generate estimates of the three betas, referred to as **factor betas**. The required return on equity is then estimated using the factor betas and estimates of the **factor risk premiums**.

EXAMPLE 11

Cost of Equity Estimation using the Fama–French Five-Factor Model

An analyst estimates the required return on equity for a company using the Fama–French five-factor model. The analyst must estimate risk premiums for each factor and run a regression of the company's excess stock returns on the five factors to estimate the factor betas. The premiums and betas are presented in the following table:

Factor	Estimated Beta	Risk Premium
Market	1.2	6.5%
Size (SMB)	0.10	1.8%
Value (HML)	–0.20	4.0%
Profitability (RMW)	0.5	2.0%
Style (CMA)	0.2	1.0%

The risk-free rate is 3.82%.

1. Calculate an estimate of the required return on equity for the company using the Fama–French five-factor model.

Solution

Using the model, the required return on equity for the company is estimated at 12.2%, or

$$r_e = 0.0382 + (1.2 \times 0.065) + (0.10 \times 0.018) + (-0.2 \times 0.04) + (0.5 \times 0.02) + (0.2 \times 0.01)$$

$$r_e = 0.0382 + 0.078 + 0.0018 - 0.008 + 0.01 + 0.002 = 0.1220, \text{ or } 12.2\%$$

The use of these risk-based models is similar:

- Historical returns are used to estimate the relationship between a company's stock's excess returns and these factors.
- Slope coefficients from the estimated regression, along with expectations for the factor risk premiums and the risk-free rate, are used to calculate an estimate of the company's required return on equity.

However, analysts should be aware of the following:

- Estimates from the different risk factor models often yield different results.
- The beta coefficient on the market factor (ERP) normally differs between the single-factor CAPM and multifactor models such as the Fama–French models because of the presence of the additional factors in the models.
- Analysts often use a short-term risk-free rate when computing excess returns to estimate the factor betas in these risk-based models. In an environment with an upward-sloping yield curve, doing so can result in the understatement of the risk-free rate. However, this understatement can be remedied by using a different time series for the risk-free rate, properly adjusted for periodicity, when regressing historical stock returns against these different factors.

Estimating the Cost of Equity for Private Companies

Estimating the required return on equity for a privately held company is more challenging for analysts, given the following:

- Security prices and returns are not readily available for private companies, so risk factor models such as the CAPM and Fama–French models cannot be directly applied to privately held companies. However, these models can be adapted and applied indirectly to private companies.
- Unlike public companies, private companies might be smaller, earlier in the company life cycle, have owners as managers, and have ownership structures with greater concentration of control.
- Private companies are less liquid and might disclose less investor relevant information than public companies.

The required return on equity for private companies often includes

- a **size premium (SP)**,
- an **industry risk premium (IP)**, and
- a **specific-company risk premium (SCRP)**.

A smaller company size is typically associated with greater company risk which can arise from greater difficulty in securing capital, more uncertain growth prospects, and riskier business operations. Collectively, these can result in higher risk and required returns on equity for private companies. An IP can be added for private companies in relatively riskier industries.

The SCRP is a general risk premium that reflects factors such as geographic risk, key-person risk, or other firm-specific factors that might not be easy to diversify away. Another key risk factor inherent in private companies is their illiquidity. However, the higher illiquidity risk is typically not reflected in the required return as an additional risk premium but rather as a reduction in the estimated value for an equity interest, referred to as a discount for lack of marketability.

To estimate the required return on equity for a private company, analysts commonly have two choices, namely,

- the expanded CAPM and
- the build-up approach.

Expanded CAPM

To estimate r_e for non-publicly traded or private companies, analysts can use an adaptation of the CAPM called the expanded CAPM, which adds a premium for small company size and other company-specific risks. The expanded CAPM requires estimation of a beta from a peer group of publicly traded companies, with r_e calculated as

$$r_e = r_f + \beta_{peer}(\text{ERP}) + \text{SP} + \text{SCRP}. \tag{19}$$

We use the following steps in the estimation:

1. Estimate an industry beta, β_{peer}, from a peer group of publicly traded companies in the same industry as the subject private company.
2. Given an estimate of the risk-free rate r_f and the ERP, compute a CAPM estimate for r_e.
3. Determine whether additional risk premia for company size and other company-specific risk factors are warranted.
4. If warranted, add relevant size and company-specific risk premia to arrive at a final estimate of r_e for the subject company.

Analysts typically add an SP to the required return on equity for smaller, privately held companies. The amount of the SP is often assumed to be inversely related to the size of the company being valued. When the SP estimate is appropriately based on the lowest market-cap decile of public companies—frequently the case because many private businesses are small relative to publicly traded companies—the result corresponds to the return on an average-systematic-risk micro-cap public equity issue.

An analyst should exercise caution when using historical measures of the SP. The population of small capitalization companies likely includes previously larger capitalization companies in financial distress. If this is the case, a historical risk premium estimate could require a downward adjustment for estimating the required return for a small, but financially healthy, private company.

The estimation of a company-specific risk premium is varied in practice and based on both qualitative and quantitative factors. These factors are summarized in Exhibit 12.

Exhibit 12: Company-Specific Premium: Qualitative versus Quantitative Factors

Qualitative Factors	Quantitative Factors
• The industry in which the business operates • Competitive position within the industry • Management's experience and expertise • Customer and supplier concentration • Geographic concentration of the business • Governance model of the company • Asset nature and type (tangible vs. intangible)	• Financial and operational leverage • Volatility in cash flows and earnings • Earnings predictability • Pricing power

These factors can be analyzed relative to those of a peer group of publicly traded or other privately held companies in the same industry. The larger the company-specific risks identified by the analyst, the larger the company-specific risk premium.

Build-Up Approach

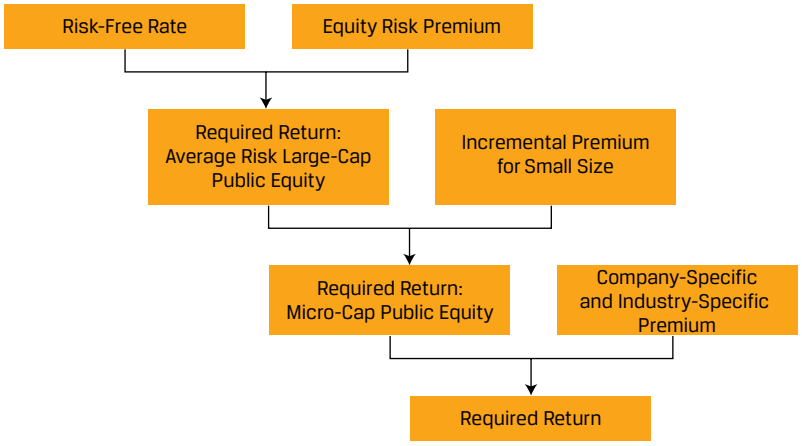
A second approach analysts use for estimating a private company's r_e is the build-up approach. This approach involves "building up" the required return on equity, beginning with the risk-free rate, and then adding relevant risk premia to account for various risk considerations, or

$$r_e = r_f + \text{ERP} + \text{SP} + \text{IP} + \text{SCRP}, \tag{20}$$

where SP is a size premium and SCRP is a specific-company risk premium.

The ERP is often estimated with reference to equity indexes of publicly traded companies and is not beta adjusted. The largest market-capitalization companies typically constitute a large fraction of these indexes' value. With a beta of 1.0 implicitly multiplying the ERP, the sum of the risk-free rate and the ERP is effectively the required return on equity for an average-systematic-risk large-cap public equity issue. The build-up approach starts with this and then adjusts for additional size and company specific premia as shown in Exhibit 13.

Exhibit 13: Build-Up Approach for Private Companies



As with the extended CAPM method, analysts often add an SP to account for the smaller size of most privately held companies, again where the premium is typically after adjustment for the differences in the betas of small- and large-cap stocks to isolate the effect of size—a beta-adjusted SP.

Finally, an analysis of risk factors incremental to those captured by the previously included premia might lead the analyst to also add a specific-company premium to arrive at a final estimate of the subject company's required return on equity. The build-up approach might be appropriate when a set of comparable public companies are unavailable or of questionable comparability.

International Considerations

Exchange rates, inflation, data, and models in emerging markets are possible considerations for an analyst when estimating r_e for international companies. For example, factor models, such as the locally focused CAPM, might not work well for an emerging market.

Country Spread and Country Risk Rating Models

Risk premium estimation for emerging markets is particularly challenging. Of the numerous approaches that have been proposed to supplement or replace traditional historical and forward-looking methods, we look at two:

- the country spread model
- the country risk rating model

Using the country spread model for ERP estimation, an additional risk premium—the **country risk premium (CRP)** or country spread premium—is required by investors for the added risk of investing in another country, often referred to as the "local" country. The added risk could be due to economic conditions, risk of expropriation, political risk, or other risk.

For an emerging equity market, this model is

$$\text{ERP} = \begin{matrix}\text{ERP for a} \\ \text{developed market}\end{matrix} + (\lambda \times \text{Country risk premium}), \tag{21}$$

where λ is the level of exposure of the company to the local country.

The CRP represents a premium associated with the anticipated greater risk of a market compared with the benchmark developed market. One method for calculating this premium is to use the **sovereign yield spread**, or a comparison of the yield on a local country, denominated in the benchmark developed country's currency, with the yield on a similar maturity sovereign bond in the developed country.

Typically, analysts hope that a sovereign bond yield spread is adequate for approximating this premium. Thus, the country premium is often estimated as the yield on emerging market bonds (denominated in the currency of the developed market) minus the yield on developed market government bonds.

Consider the sovereign risk ratings in Exhibit 14 and the corresponding CRPs. These CRPs are estimated using the sovereign yield spread relative to a benchmark country's yield.

The problem with this method is that we are using a bond yield spread to estimate a country's ERP. Because of differences in legal and market environments among countries, using the yield spread on sovereign bonds might not be appropriate for a cost of equity.

Exhibit 14: CRPs by Country Based on the Sovereign Yield Spread

Country	Sovereign Risk Rating (10 = Most risk)	CRP
A	6	3.90%
B	2	0.50%
C	5	2.75%
D	7	5.40%
E	4	1.75%
F	10	19.50%

Country	Sovereign Risk Rating (10 = Most risk)	CRP
G	9	14.50%
H	1	0.0%
I	3	1.0%
J	8	9.20%

Aswath Damodaran (2021) refined the CRP estimation by modifying the sovereign yield spread for the relative volatility between equity versus bond returns, where

$$\text{Country risk premium} = \text{Sovereign yield spread} \times \frac{\sigma_{Equity}}{\sigma_{Bond}}, \tag{22}$$

where

σ_{Equity} is the volatility of the local country's equity market

σ_{Bond} is the volatility of the local country's bond market

This method, however, requires that the local country have both historical equity and bond returns.

Extended CAPM

In cases where there is exposure to a country's risk, a country risk adjustment should be made to r_e. Several approaches are used in estimating r_e for companies operating internationally. These include the following:

- global CAPM
- international CAPM
- country spread and risk rating models

In the **global CAPM (GCAPM)**, where a global market index is the single factor, there are no assumed significant risk differences across countries. The issue is that a likely result is a low, or even negative, slope coefficient because of the correlation between emerging and developed market returns being quite low in general. Expanding this model to include a second factor, such as domestic market index returns, mitigates this to a degree but depends on the availability of reliable financial data in the emerging market.

Another approach is the **international CAPM (ICAPM)**, where the returns on a stock in an emerging market are regressed against the risk premium of a global index (r_{gm}) in addition to that of wealth-weighted foreign currency index (r_c):

$$E(r_e) = r_f + \beta_G\big(E(r_{gm}) - r_f\big) + \beta_C\big(E(r_c) - r_f\big). \tag{23}$$

Proxies for the global index *(gm)* include the MSCI All Country World Index (MSCI ACWI) and the FTSE All-World Index. The foreign currency index, r_c, aggregates the return from investing in the foreign currency relative to the company's domestic currency using country relative wealth, not market capitalization, weightings. The return to each currency consists of the expected change in the exchange rate plus the risk-free return of that country.

The sensitivity to the global index, β_G, depends on the company's relationship with its local economy versus the global economy. Lower values of β_G are associated with companies that are less connected to the global economy. The sensitivity to the foreign currency index, β_C, depends on whether the company's cash flows are sensitive to exchange rates through its imports, exports, and investments.

Comparison of International Adjustment Methods

Analysts face challenges in estimating the cost of equity for cross-border valuations, given that there is no generally accepted methodology for estimating the CRP for companies with operations in a developing country.

- If the company's operations are global, but limited to developed countries, the GCAPM and ICAPM are reasonable methods to apply.
- If however, the company's operations extend to developing countries, the methodology is less clear. The estimation of the CRP using the sovereign yield approach might be appropriate, but these estimations are based on historical rates and might not reflect the risk premium going forward.

EXAMPLE 12

CRP

An analyst is estimating the CRP for the Makinassi Company headquartered in Country X that has 40% of its sales in Country Y. The analyst gathers the following information:

Country	Sovereign country yield spread	Standard deviation of equity returns	Standard deviation of bond returns
X (Headquarters)	1.5%	2.0%	1.0%
Y (Local)	3.2%	4.0%	2.5%

1. Using the Damodaran model, calculate the CRP that the analyst should use for the Makinassi Company.

   Solution

   From the perspective of a company operating in Country X, the relevant sovereign yield spread is 3.2% – 1.5% = 1.7%. Adjusting this spread for the relative volatility of the equity and bond returns in the local market, the premium is

   $$\text{CRP} = 0.017 \times 0.04/0.025 = 0.0272$$

   Adjusting this premium for the exposure that Makinassi has to Country Y,

   $$\text{Premium} = 0.40 \times 0.0272 = 0.01088$$

   Therefore, when the analyst calculates the cost of equity for Makinassi, he should add a CRP of 1.088% to the cost of equity for the company.

Required Return on Equity Summary

- Models used to estimate the cost of equity include (1) the DDM, (2) the BYPRP model, and (3) risk-based models.
- Risk-based models for estimating the cost of equity include the CAPM and factor models, such as the Fama–French models.

- Estimating the cost of equity for a private company using risk-based models requires adjusting the premiums for company size, the industry in which it operates, and any specific company premium. A method that can be used to estimate the cost of equity for private companies is the expanded CAPM.
- The build-up method for the cost of equity starts with the risk-free rate and the ERP, then adjusts this cost for any other premia.
- The cost of equity can be adjusted for additional risk related to international considerations using the CRP or the ICAPM.

KNOWLEDGE CHECK

1. What are the primary differences between the CAPM and the Fama–French models for estimating the cost of equity?

   Solution

   The CAPM is a one-factor model—the market factor, that is, the primary driver of security returns in the market. The Fama–French models allow for more factors to influence security returns beyond the market factor.

2. Classify each of the following elements of the DDM based on the effect on the cost of equity using the DDM.

	Effect on Cost of Equity		
Change, holding all other factors constant	**No effect**	**Increase**	**Decrease**
Increase in the current dividend			
Increase in the expected growth rate of dividends			
Increase in the share price			
Decrease in the current dividend			
Decrease in the expected growth rate of dividends			
Decrease in the share price			

Solution

Change, holding all other factors constant	**No effect**	**Positive**	**Negative**
Increase in the current dividend		✓	
Increase in the expected growth rate of dividends		✓	
Increase in the share price			✓
Decrease in the current dividend			✓
Decrease in the expected growth rate of dividends			✓
Decrease in the share price		✓	

3. An analyst is using a three-factor model with factors F1, F2, and F3 to estimate the risk premium for an individual stock. The results of the regression are

   $r_i - r_f = 0.003 + 1.2\,\text{F1} - 0.4\,\text{F2} + 0.2\,\text{F3}.$

   If the expected risk-free rate is 2%, and the three factor risk premiums are

   F1 = 0.05,

   F2 = 0.01, and

   F3 = 0.04,

   what is the expected cost of equity?

   Solution

   The required return on equity for the stock is
   $r_e - r_f = 0.003 + (1.2 \times 0.05) - (0.4 \times 0.01) + (0.2 \times 0.04) = 0.067.$
   The estimate of the cost of equity is 0.067 + 0.02 = 0.087, or 8.7%.

Consider a company that currently pays a dividend of USD2.50. The current price of the stock is USD50, and the dividend is expected to grow at a rate of 5% per year into perpetuity. Using the DDM, determine the following:

4. What is the company's required rate of return on equity?

   Solution

   $r_e = \frac{\$2.5(1 + 0.05)}{\$50} + 0.05 = \frac{\$2.625}{\$50} + 0.05 = 0.0525 + 0.05 = 0.1025,$ or 10.25%.

5. If the growth rate of dividends is revised upward, what effect does this have on the required rate of return on equity?

   Solution

   If the growth rate is revised upward, both the dividend yield (D_1/P_0) and the growth rate (g) increase, increasing the required rate of return on equity.

6. If the price of the stock declines, but expectations regarding dividends and dividend growth remain the same, what effect does this have on the required rate of return on equity?

   Solution

   If the stock price declines, the dividend yield (D_1/P_0) increases, resulting in the increased required rate of return on equity.

An analyst is estimating the required return on equity for a company and has gathered the following information:

Estimated risk-free rate (10-year government bond)	6%
Estimated equity market return	10%
Estimated ERP beta	0.8
Estimated SMB premium	5%
Estimated HML premium	2%
Fama–French three-factor regression estimation:	

Intercept	0.01
Coefficient on market factor	0.75
Coefficient on SMB factor	0.15
Coefficient on HML factor	0.05

The Fama–French three-factor model coefficients were estimated using the same risk-free rate that is used in the CAPM.

7. What is the required rate of return based on the CAPM?

Solution

$r_e = 0.06 + 0.8(0.10 - 0.06) = 0.092$, or 9.2%

8. What is the required rate of return based on the Fama–French model?

Solution

$r_e - 0.06 = 0.01 + [0.75(0.10 - 0.06)] + [0.15(0.05)] + [0.05(0.02)]$
$r_e - 0.06 = 0.0485$
$r_e = 0.1085$, or 10.85%

9. Why do these required rates of return on equity differ between these two models?

Solution

The Fama–French model allows more factors or drivers of returns, whereas the CAPM limits the factors to the single market factor. In this case, the SMB and HML factors increase the required return on equity by [0.15(0.05)] + [0.05(0.02)] = 0.0085, or 0.85%.

6 MINI-CASE 1

☐ estimate the cost of debt or required return on equity for a public company and a private company

Gretna Engines

KM is a junior analyst at Atla Investments. KM meets with her manager to discuss a possible investment in Gretna Engines. KM's manager tasks her with estimating Gretna's cost of debt and equity as a starting point for determining Gretna's WACC and related valuation.

KM notes some of Gretna's key information:

Company: Gretna Engines	Small capitalization, publicly traded company
Business Model	Manufacturer of small engines for boats and recreational all-terrain vehicles (ATVs). Operates with a relatively high proportion of fixed costs in its cost structure.
Industry	Industrial equipment (cyclical)

Revenues, Earnings, Cash Flows	All have been trending upward in recent years but vary considerably over the business cycle.
Nature of Assets	Assets consist primarily of inventory and property, plant, and equipment representing its engine production facilities.

Gretna has recently been performing well in terms of sales and profitability. However, several years back, because of a significant decline in sales of boats and ATVs, the company found itself in a liquidity crisis. At that time, the company issued redeemable, preferred stock to improve its liquidity position, albeit at a rather high cost.

In recent financial filings, Gretna's management has indicated that given favorable market conditions, they are seeking to issue new, unsecured debt to retire the preferred shares at par value. Exhibit 15 presents Gretna's current capital structure and selected information about each capital type.

Exhibit 15: Gretna's Current Capital Structure and Related Information

Capital Type	Current Capital Structure	Selected Capital Type Information
Debt	20%	Single debt issue: 7% coupon rate; remaining maturity of seven years; semiannual payments. Straight unsecured debt; BBB credit rating; thinly traded issue—no reliable YTM available.
Preferred Equity	15%	Dividend rate of 7%, currently redeemable at par value of 1,000 per share Trades frequently; current share price is 980
Common Equity	65%	Actively traded

Next, KM gathers information on four liquid, semiannual-pay corporate bonds with the same BBB rating as Gretna, shown in Exhibit 16.

Exhibit 16: Selected Information on Liquid, BBB-Rated Bonds

	Coupon Rate	Remaining Maturity	Current Price (per 100 of par value)
Bond 1	5%	4 years	99.50
Bond 2	7%	4 years	106.46
Bond 3	6%	8 years	100
Bond 4	8%	8 years	112.42

Using the CAPM and the Fama–French five-factor (FF5) model, KM estimates Gretna's cost of equity by regressing Gretna's excess returns on the relevant risk factors using the most recent 60 months of returns. Factor betas from the CAPM and the FF5 model, along with her estimated factor risk premiums, are shown in Exhibit 17. She decides to use the 20-year government benchmark rate of 2.1% as the risk-free proxy.

Exhibit 17: CAPM and FF5 Factor Beta and Risk Premiums

	Factor	Factor Beta	Risk Premium
A. CAPM Factor Beta and Risk Premium			
	Market (ERP)	0.91	5.5%
B. FFM5 Factor Betas and Risk Premiums			
	Market (ERP)	0.95	5.5%
	Size (SMB)	0.45	1.8%
	Value (HML)	0.14	3.9%
	Profitability (RMW)	–0.19	3.1%
	Investment (CMA)	0.30	3.7%

Finally, KM also estimates Gretna's cost of equity using the BYPRP approach. For this estimate, she assumes a historical risk premium of 6.2% earned by equity investors relative to long-term corporate bond yields.

KM reports back to her manager with her estimates of Gretna's costs of debt and equity. Her manager asks how she arrived at the ERP of 5.5% in her cost of equity estimates. KM tells her manager that she estimated it using the historical approach, electing to use the short-term government bill rate and an arithmetic mean in the estimation.

KNOWLEDGE CHECK

1. Identify two characteristics of Gretna's business model that might cause the firm to have a relatively higher cost of capital.

   Solution

   One characteristic would be relatively high volatility (less stability) in revenues and earnings, given the cyclical nature of the industry in which Gretna operates. Such firms are likely to face a higher cost of capital than firms with low volatility in revenues and earnings. Another factor could be the relative illiquidity of the firm's assets. All else equal, firms with asset bases comprising relatively low (high) proportions of liquid assets are more likely to have higher (lower) costs of capital. A third factor would be that Gretna currently operates with high operating leverage (a high proportion of fixed costs in its cost structure).

2. How might KM estimate a current cost of debt given Gretna's current capital structure? What is Gretna's current cost of debt?

   Solution

   In the absence of a reliable YTM, given the debt's illiquidity, KM could use matrix pricing to estimate Gretna's current cost of debt. The current market prices for each of the four similarly rated bonds in Exhibit 16 are presented in the following matrix:

Price Matrix: BBB-Rated Bonds

Remaining Maturity	5% Coupon	6% Coupon	7% Coupon	8% Coupon
4 Years	99.5		106.46	
5 Years				

Remaining Maturity	5% Coupon	6% Coupon	7% Coupon	8% Coupon
6 Years				
7 years				
8 years		100		112.42

Step 1 Calculate the YTM for each bond based on its market price.

Bond 1 YTM: N = 8; PV= –99.5; PMT = 2.5; FV = 100; CPT I/Y

= 2.570% × 2 = 5.140%

Bond 2 YTM: N = 8; PV= –106.46; PMT = 3.5; FV = 100; CPT I/Y

= 2.595% × 2 = 5.191%

Bond 3 YTM: N = 16; PV= –100; PMT = 3; FV = 100; CPT I/Y

= 3.000% × 2 = 6.000%

Bond 4 YTM: N = 16; PV= –112.42; PMT = 4; FV = 100; CPT I/Y

= 3.010% × 2 = 6.021%

Step 2 Calculate the average YTM for each maturity (i.e., 4-year and 8-year). This can be done by placing the YTM and price for each bond into a similar matrix form.

Price and YTM Matrix: BBB-Rated Bonds

Remaining Maturity	5% Coupon	6% Coupon	7% Coupon	8% Coupon	Average YTM
4 Years	99.5 (5.140%)		106.46 (5.191%)		5.165%
5 Years					
6 Years					
7 years					
8 years		100 (6.000%)		112.42 (6.021%)	6.010%

Average YTM (4-year maturity) = (5.140% + 5.191%)/2 = 5.166%

Average YTM (8-year maturity) = (6.000% + 6.021%)/2 = 6.011%

Step 3 Use linear interpolation to estimate the average YTMs for the 5-year, 6-year, and 7-year maturities by first computing the difference in YTMs between the 8-year average YTM and the 4-year average YTM (linear interpolation assumes that the yields between the two known yields are equal distance apart).

8-year average YTM – 4-year average YTM = 6.011% – 5.166% = 0.845%

Divide this difference by the difference in years between the known yields (in this case, 8 – 4 = 4): 0.845%/4 = 0.211%.
Use this 0.211% as the estimated annual incremental in average yield as the term to maturity increases after year 4:
Estimated average YTM for 5-year maturity =

4-year average YTM + 0.211% = 5.166% + 0.211% = 5.377%

Estimated average YTM for 6-year maturity =

5-year average YTM + 0.211% = 5.377% + 0.211% = 5.588%

Estimated average YTM for 7-year maturity =

6-year average YTM + 0.211% = 5.588% + 0.211% = 5.799%

Based on matrix pricing, Gretna's debt would likely have a YTM of approximately 5.799%, or 5.8%. However, given that this YTM was derived from more liquid bonds than Gretna's thinly traded bond, Gretna's debt would likely have a slightly higher YTM to compensate investors for liquidity risk.

3. What is Gretna's current cost of preferred equity?

Solution

Gretna's preferred equity is actively traded and is currently trading at a price of 980. Given its annual dividend rate of 7% and par value of 1,000, the annual dividend amount is 70. Therefore, the cost of the preferred issue can be estimated at 7.14%, calculated using the perpetuity formula (which is the DDM formula, solving for r_e, with a growth rate equal to 0):

Cost of preferred equity = 70/980 = 7.14%.

4. How might KM estimate Gretna's cost of debt should management execute its plan to redeem its preferred equity?

Solution

Currently, debt and preferred equity represent 35% of Gretna's capital structure. If Gretna's management follows through with its plan to issue new debt to redeem its preferred equity, the company's new capital structure would be 35% debt and 65% common equity. A starting point for KM to estimate a new cost of debt would be to look at the current estimated cost of debt of 5.8% and cost of preferred equity of 7.14%. Given that debtholders have a higher claim on assets than preferred shareholders, the additional debt would likely have a slightly higher cost than the current estimated cost of debt of 5.8% but lower cost than the current 7.14% cost of preferred equity.

5. Describe the market conditions that would lead Gretna's management team to reach its conclusion about the timing of issuing the new debt.

Solution

Favorable market conditions for issuing the new debt would be a relatively low risk-free rate and/or relatively tighter credit spreads. Such conditions would likely lead to a relatively lower cost of debt for Gretna. At the current price of 980, the preferred is trading at a slight discount to par. The fact that management believes current market conditions to issue the debt are favorable, even when the company would have to redeem the preferred equity at par value (a slight premium to the current price), suggests that the risk-free rate is relatively low and/or credit spreads are relatively tight.

6. What actions could Gretna's management team take to further lower the cost of issuing the new debt?

Solution

To further lower its debt cost at issuance, Gretna's management could consider (1) issuing secured debt, secured by some of its property, plant and equipment; (2) issuing the debt with a put option; or (3) issuing the debt with a conversion feature. First, issuing secured debt will typically be cheaper than issuing unsecured debt because the bondholder now has collateral to lessen the risk of loss given default. Second, issuing debt with a put or conversion feature provides investors with valuable rights that also serve to lower the initial yield on the new debt at issuance.

7. What is Gretna's cost of common equity using the (1) CAPM, (2) FF5 model, and (3) BYPRP model?

Solution

Gretna's estimated cost of common equity using the CAPM is 7.11%, calculated as

$$r_e = r_f + \beta(\text{ERP})$$

$$r_e = 0.021 + 0.91\,(0.055) = 0.0711, \text{ or } 7.11\%.$$

Gretna's estimated cost of common equity using the FF5 model is 9.20%, calculated as

$$r_e = r_f + \beta_1(\text{ERP}) + \beta_2\,\text{SMB} + \beta_3\,\text{HML} + \beta_4\,\text{RMW} + \beta_5\,\text{CMA}$$

$$r_e = 0.021 + 0.95(0.055) + 0.45(0.018) + 0.14(0.0390) - 0.19(0.031) + 0.30(0.037)$$

$$= 0.0920, \text{ or } 9.20\%$$

Gretna's estimated cost of common equity using the BYPRP model can be calculated by adding the estimated cost of debt of 5.8% derived from matrix pricing and KM's estimated premium of 6.2% earned by equity investors relative to long-term corporate bond yields:

$$r_e = r_d + \text{RP}$$

$$r_e = 0.058 + 0.062 = 0.12, \text{ or } 12\%$$

8. Explain why, given the data from Panel A of Exhibit 17, the CAPM estimate of Gretna's cost of common equity might not be a reasonable estimate.

Solution

The three estimates of the cost of common equity, based on the information given, are as follows:

- CAPM: 7.11%
- FF5 model: 9.20%
- BYPRP estimate: 12.00%

The cost of preferred equity is 7.14%. Given that common shareholders have a residual claim on assets below that of preferred shareholders, they will demand a higher required return on equity. Thus, the CAPM estimate of 7.11% does not appear to be a realistic estimate, given the estimated cost of preferred shareholders of 7.14%.

9. Explain why KM's estimate of the ERP might be relatively high or low, given her two choices in the estimation.

Solution

Two of the four key assumptions an analyst must make in estimating the ERP using the historical approach are (1) which proxy to use for the risk-free return and (2) which mean measure to use. KM estimated the ERP using the short-term government bill rate and an arithmetic mean.
Assuming a typical normal yield curve for most of the estimation period where short-term government bond yields were lower than longer-term government bond yields, the use of the short-term bill rate in the estimation would lead to a higher estimate of the ERP. Further, using an arithmetic mean rather than a geometric mean would very likely lead to a higher estimate of the ERP. Thus, KM's estimate of the ERP under her chosen assumptions is likely to be high relative to another estimate that uses other choices (long-term government bond YTM, geometric mean) for those two key assumptions.

7 MINI-CASE 2

☐ evaluate a company's capital structure and cost of capital relative to peers

Precision Irrigation

LM is an analyst in the corporate development group at Hydrocrop Ltd, a company that manufactures and sells irrigation equipment. Management is considering the acquisition of Precision Irrigation, a private company that offers software solutions aimed at increasing irrigation efficiency. Precision is located in an emerging-market country with higher sovereign risk. LM has been tasked with estimating Precision's WACC.

LM gathers financial information on Precision and publicly traded software companies in the emerging country. The information is presented in Exhibit 18.

Exhibit 18: Selected Information for Precision and Peer Companies

	Precision Irrigation	*Software Industry Average*
A. Common-Sized Balance Sheet		
Cash and equivalents	9%	14%
Accounts receivable	10%	12%
Inventory	4%	3%
Other current assets	5%	4%
Property, plant, and equipment (net)	21%	30%
Intangible assets and goodwill	47%	32%

	Precision Irrigation	*Software Industry Average*
Other assets	4%	5%
B. Other Information		
Total debt (millions)	18.4	296.4
Total assets (millions)	105.2	1,276.2
EBITDA (millions)	12.2	177.4
Interest expense (millions)	1.6	23.5
Beta	N/A	1.25
Marginal tax rate	20%	25%

Other notes about Precision are as follows:

- The company's founder and CEO continues to be highly involved in all aspects of the company's operations, with no clear succession plan in place.
- Approximately 60% of the company's revenues come from software subscriptions, and 70% come from five major customers within close geographic proximity of each other.

LM estimates a cost of debt by estimating a synthetic bond yield on the company's 10-year non-traded bonds. He relies on an internally developed schedule of synthetic credit ratings driven by companies' leverage ratios. A portion of the schedule is presented in Exhibit 19.

Exhibit 19: Synthetic Credit Rating Schedule

Credit Rating	IC	D/E	Credit Spread
AAA	IC > 11 times	D/E < 15%	0.82%
AA	9 < IC < 11	15% < D/E < 20%	1.09%
A	7 < IC < 9	20% < D/E < 25%	1.46%
BBB	5 < IC < 7	25% < D/E < 30%	2.15%
BB	3 < IC < 1.4	30% < D/E < 40%	2.88%

The YTM on the emerging country's 10-year benchmark government bond is 5.41%. Interest expense is fully tax deductible.

LM also estimates a cost of equity for Precision using both the extended CAPM and the build-up approach. The corporate development team typically assigns an SP in the range of 3%–6% and an SCRP of 4%–8% for private companies, depending on company size and characteristics, respectively. After consulting with colleagues, LM assigns the relevant risk premiums presented in Exhibit 20.

Exhibit 20: Factor Risk Premiums

Factor	Risk Premium
Market (ERP)	6%
Size (SP)	5%

Factor	Risk Premium
Industry (IP)	1%
Specific-company (SCRP)	6%

In arriving at a final cost of debt and equity for Precision, LM believes a CRP of 2% is warranted to compensate for the higher sovereign risk. In estimating Precision's WACC, LM assumes that the company's current capital structure is its long-term, target capital structure.

KNOWLEDGE CHECK

1. Calculate an estimate of Precision's after-tax cost of debt.

   Solution:

   LM estimates the cost of debt for Precision by estimating a synthetic yield on the company's 10-year bonds. Given the information in Panel B of Exhibit 16, Precision's IC ratio is 7.63 (= 12.2/1.6), and its D/E ratio is 0.2120 (= 18.4/(105.2 – 18.4)). Given the synthetic rating schedule in Exhibit 17, these leverage ratios imply a synthetic credit rating of A and an implied credit spread of 1.46%.
   Adding this credit spread and the CRP of 2% to the 10-year benchmark government bond yield of 5.41% yields a cost of debt estimate of

   $$5.41\% + 1.46\% + 2.00\% = 8.87\%.$$

   The after-tax cost of debt is then estimated at 8.87% (1 – 0.20) = 7.096%.

2. Explain why the SP LM chose for estimating Precision's cost of equity is likely justified in being near the high end of the range.

   Solution:

   LM estimates a SP of 5% for Precision (Exhibit 18). This is likely driven by the company's relatively small size compared to the industry. As shown in Exhibit 16, as measured by total assets, Precision (105.2 million) is less than 1/10 the size of the average publicly traded company in the industry (1.276 billion). Given that the SP is typically assumed to be inversely related to company size, it seems reasonable that LM chose an SP near the high end of the range used by the corporate development group.

3. Discuss company characteristics of Precision that would justify a higher or lower SCRP.

   Solution:

   Company characteristics that would justify a higher SCRP for Precision would be

   - a lower proportion of assets that are tangible and liquid compared to the industry,
   - high customer concentration risk,
   - high geographic concentration risk, and
   - significant key person risk.

   First, compared to the industry average, Precision has an asset base that consists of a significant amount of intangible assets (47% versus 32%), and

the company also holds less cash and equivalents (9% versus 14%). All else equal, companies with asset bases comprising relatively high proportions of intangible and illiquid assets are more likely to have higher costs of equity. Second, Precision has significant customer and geographic concentration risk, as evidenced by the fact that approximately 70% of revenues come from five major customers within close geographic proximity of each other. Finally, the founder and CEO appears to be involved in all aspects of the business, with no clear succession plan in place, which points to significant key-person risk.

Company characteristics that would justify a lower SCRP for Precision would be:

- a higher proportion of recurring revenues and
- lower financial leverage in comparison to the industry.

First, approximately 60% of the company's revenues come from software subscriptions, which suggests a high proportion of recurring revenues. Companies with a high proportion of recurring revenues typically have lower costs of equity because these companies have relatively more stable earnings and cash flow streams.

Second, Precision is operating with less leverage than the mean software company, as evidenced by a lower D/E ratio of 0.2120, versus the industry average of 0.3025 (= 296.4/(1,276.2 – 296.4)), and a slightly higher IC ratio of 7.63, versus 7.55 for the industry (= 177.4/23.5).4.

4. Calculate estimates of Precision's cost of equity using the (1) extended CAPM and the (2) build-up approach.

Solution:

1. Precision's estimated cost of common equity using the extended CAPM is 26.56%, calculated as

$$r_e = r_f + \beta(\text{ERP}) + \text{SP} + \text{IP} + \text{SCP}.$$

The first step is to estimate a beta for Precision. To do so, start by unlevering the industry beta to arrive at an asset beta using the marginal tax rate of 20% and D/E ratio of 0.3025:

$$\beta_{Asset} = \beta_C \left[\frac{1}{1 + \left((1 - t_c) \frac{D_C}{E_C} \right)} \right]$$

$$= 1.25 \left[\frac{1}{(1 + (1 - 0.25)(0.3025))} \right]$$

$$= 1.019.$$

The second step is to compute the estimated beta for Precision given its marginal tax rate and D/E ratio:

$$\beta_{Precision} = \beta_{Asset} \left[1 + \left((1 - t_s) \frac{D_S}{E_S} \right) \right]$$

$$= 1.019[1 + ((1 - 0.20)0.2120)]$$

$$= 1.19$$

Finally, calculate the cost of equity using the estimated beta for Precision, the risk premiums from Exhibit 18, and the additional CRP of 2%:

$$r_e = 5.41\% + 1.19(6\%) + 5\% + 1\% + 6\% + 2\% = 26.55\%.$$

2. Precision's estimated cost of common equity using the build-up approach, inclusive of the additional CRP of 2%, is 25.41%, calculated as

$r_e = r_f$ + ERP + SP + SCRP + CRP

r_e = 5.41% + 6% + 5% + 6% + 2% = 24.41%

5. Calculate an estimate of Precision's WACC using the build-up approach estimate of the cost of equity.

Solution:

Precision's estimated WACC is 21.13%, calculated as

$$r_{wacc} = w_d r_d(1 - t) + w_e r_e$$
$$= (0.1749)(0.07096)(1 - 0.20) + (0.8251)(0.2441)$$
$$= 0.2113, \text{ or } 21.13\%,$$

where

w_d = 18.4 / 105.2 = 0.1749 and

w_e = (105.2 – 18.4)/105.2 = 0.8251.

PRACTICE PROBLEMS

The following information relates to questions 1-5

An equity index is established in Year 1 for a country that has recently moved to a market economy. The index vendor constructed returns for the four years prior to Year 1 based on the initial group of companies constituting the index in Year 1. From Year 12 to Year 16, a series of military confrontations concerning a disputed border disrupted the economy and financial markets. The dispute is conclusively arbitrated at the end of Year 16. In total, 20 years of equity market return history is available. Other selected data are in the following tables.

Selected Data

Geometric mean return relative to 10-year government bond returns (over a 20-year period)	2% per year
Arithmetic mean return relative to 10-year government bond returns (over a 20-year period)	2.3% per year
Index forward dividend yield	1%
Forecasted public company earnings growth	5% per year
Forecasted market P/E growth	1% per year
Forecasted real GDP growth rate (by Year 19)	4%
Current vs. long-term inflation forecast	6% vs. 4% per year
Current yield curve (inversion)	Short maturities: 9% 10-year maturities: 7%

1. The inclusion of index returns prior to Year 1 would be expected to:
   - **A.** bias the historical ERP estimate upward.
   - **B.** bias the historical ERP estimate downward.
   - **C.** have no effect on the historical ERP estimate.

2. The events of 2012 to 2016 would be expected to:
   - **A.** bias the historical ERP estimate upward.
   - **B.** bias the historical ERP estimate downward.
   - **C.** have no effect on the historical ERP estimate.

3. In the current interest rate environment, using a required return on equity estimate based on the short-term government bond rate and a historical ERP defined

in terms of a short-term government bond rate would be expected to:

A. bias long-term required return on equity estimates upward.

B. bias long-term required return on equity estimates downward.

C. have no effect on long-term required return on equity estimates.

4. An estimate of the ERP consistent with the Grinold-Kroner model is *closest* to:

A. 2.7%.

B. 3.0%.

C. 4.3%.

5. Common stock issues in the aforementioned market with average systematic risk are *most likely* to have required rates of return of:

A. between 2% and 7%.

B. between 7% and 9%.

C. 9% or greater.

SOLUTIONS

1. A is correct. The backfilling of index returns using companies that have survived to the index construction date is expected to introduce a positive survivorship bias into returns.

2. B is correct. The events of Year 12 through Year 16 depressed share returns but (1) are not a persistent feature of the stock market environment, (2) were not offset by other positive events within the historical record, and (3) have led to relatively low valuation levels, which are expected to rebound.

3. A is correct. The required return reflects the magnitude of the historical ERP, which is generally higher when based on a short-term interest rate (as a result of the normal upward-sloping yield curve), and the current value of the rate being used to represent the risk-free rate. The short-term rate is currently higher than the long-term rate, which will also increase the required return estimate. The short-term interest rate, however, overstates the long-term expected inflation rate. Using the short-term interest rate, estimates of the long-term required return on equity will be biased upward.

4. B is correct.

   i = 4% per year (long-term forecast of inflation)

   g = 4% per year (growth in real GDP)

   Δ (P/E0 = 1% per year (growth in market P/E)

   dy = 1% per year (dividend yield or the income portion)

   Risk-free return = r_f = 7% per year (for 10-year maturities)

   Using the Grinold-Kroner model, the ERP estimate is

   ERP = {1.0 + 1.0 +[4.0 + 4.0 + 0.0)] } – 7.0 = 3.0%.

   The premium of 3.0% compensates investors for average market risk, given expectations for inflation, real earnings growth, P/E growth, and anticipated income.

5. C is correct. Based on a long-term government bond yield of 7%, a beta of 1, and any of the risk premium estimates that can be calculated from the givens (e.g., a 2% historical risk premium estimate or 3.0% Grinold-Kroner ERP estimate), the required rate of return would be at least 9%. Based on using a short-term rate of 9%, C is the correct choice.

LEARNING MODULE

4

Corporate Restructuring

LEARNING OUTCOMES

Mastery	*The candidate should be able to:*
☐	explain types of corporate restructurings and issuers' motivations for pursuing them
☐	explain the initial evaluation of a corporate restructuring
☐	demonstrate valuation methods for, and interpret valuations of, companies involved in corporate restructurings
☐	demonstrate how corporate restructurings affect an issuer's EPS, net debt to EBITDA ratio, and weighted average cost of capital
☐	evaluate corporate investment actions, including equity investments, joint ventures, and acquisitions
☐	evaluate corporate divestment actions, including sales and spin offs
☐	evaluate cost and balance sheet restructurings

INTRODUCTION

1

Corporate issuers change over time. While many changes are evolutionary, such as launching new products and expanding capacity, others involve more revolutionary changes to the legal and accounting structure of the issuer. The most well-known among these structural changes is acquisitions, in which one company buys another. Other well-known changes include divestitures and spin offs, in which an issuer sells or separates a segment of its business. Common features among these changes are that they tend to attract significant press and analyst attention and their announcement is associated with increased securities trading volume.

In this reading, you will learn how to evaluate corporate restructurings from the perspective of an independent investment analyst. We begin our discussion in Section 2 with an overview of corporate restructurings, including putting these events in the context of the corporate life cycle, and corporate issuers' motivations for pursuing them. In Sections 3 and 4, we discuss a three-step process for evaluating corporate restructurings as an investment analyst. Sections 5–7 demonstrate the evaluation process with case studies for each major type of corporate restructuring. The reading concludes with a summary and practice problems.

CFA Institute would like to thank Rosita P. Chang, PhD, CFA, and Keith M. Moore, PhD, CFA for their contribution to this reading, which includes material derived from Mergers and Acquisitions, CFA Level II, 2022. Rosita P. Chang, PhD, CFA, is at Shidler College of Business, University of Hawaii at Manoa (USA). Keith M. Moore, PhD, CFA (USA).

Most of the examples and exhibits used throughout the reading can be downloaded as a Microsoft Excel workbook. Each worksheet in the workbook is labeled with the corresponding example or exhibit number in the text.

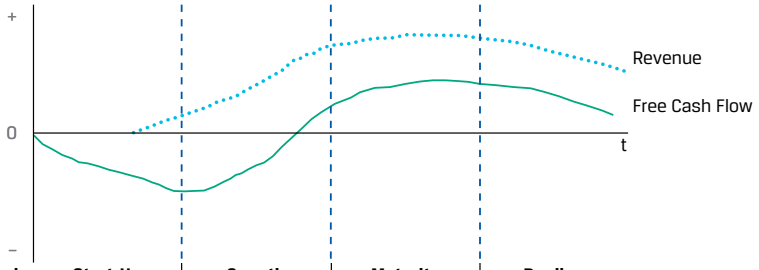
2 CORPORATE EVOLUTION, ACTIONS, AND MOTIVATIONS

☐ explain types of corporate restructurings and issuers' motivations for pursuing them

Corporate Life Cycle and Actions

Companies tend to follow a life cycle composed of four stages: start-up, growth, maturity, and decline. At each life-cycle stage, there is a corresponding revenue growth, profitability, and risk profile, which in turn generally determine the company's financing mix. A typical company's life cycle is illustrated in Exhibit 1.

Exhibit 1: Company Life Cycle



Stage in Life Cycle	Start-Up	Growth	Maturity	Decline
Revenue Growth	Beginning	Rising	Slowing	Negative
Free Cash Flow	Negative	Improving	Peak	Declining
Business Risk	High	Medium	Low	Medium-High
Debt in Capital Structure	Close to 0%	0–20%	20%+	20%+

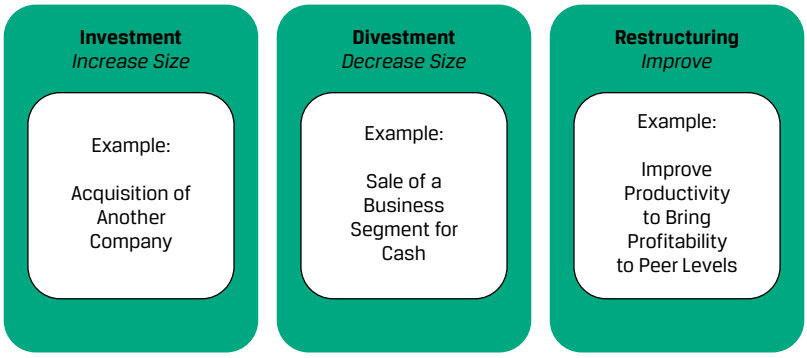
While it may be in investors' best interest for maturing companies to simply operate the business for maximum cash flow until returns fall below investors' required rate of return and then liquidate the firm, most corporate managers and boards take actions to change their destiny. We can group the kinds of changes corporate managers can make into three general categories: investment, divestment, and restructuring.

- Investment involves actions that increase the size of the company or the scope of its operations, thereby increasing revenue and perhaps revenue growth. In this reading, we focus on external, or inorganic, growth through investment actions designed to increase revenues and improve margins. We do not look at investing in the existing business, or organic growth, through capital expenditures or research and development.

- Divestment involves actions that reduce a company's size or scope, typically by shedding slower-growing, lower-profitability, or higher-risk operations to improve the issuer's overall financial performance.
- Restructuring involves changes that do not alter the size or scope of the issuer but improve its cost and financing structure with the intention to increase growth, improve profitability, or reduce risks.

These three categories of changes, with an example of each, are shown in Exhibit 2.

Exhibit 2: Types of Corporate Structural Changes



Most large corporate issuers are essentially portfolios of many diverse lines of business that often are in different stages of their life cycle and operate in different competitive environments. There are benefits to the individual business lines from common ownership and compatibility with other businesses, known as **synergies**. There can also be costs and inefficiencies, however, and some parts of the business might better fit in the hands of another corporate issuer or even operating as an independent company. Managers look to change the composition of the "corporate portfolio" in response to changing competitive conditions, limited synergies, poor profitability, or incompatibility with other businesses.

Motivations for Corporate Structural Change

An issuer's motivations to initiate a structural change can be issuer specific but can also be caused by broader macroeconomic or industry changes, known as top-down drivers, as shown in Exhibit 3.

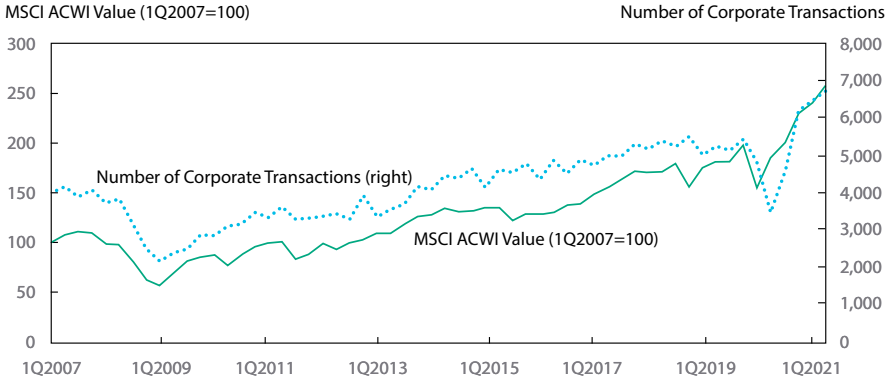
Exhibit 3: Motivations for Corporate Structural Change

	Investment Actions	Divestment Actions	Restructuring Actions
Issuer-specific motivations	• Realize synergies • Increase growth • Improve capabilities or secure resources • Opportunity to acquire an undervalued target	• Focus operations and business lines • Valuation • Liquidity needs • Regulatory requirements	• Improve returns on capital • Financial challenges, including bankruptcy and liquidation
Top-down drivers	• High security prices • Industry shocks		

While issuer-specific motivations determine the type of action a corporate issuer may take, the response to top-down motivations span the three types of restructurings.

First, all types of changes have been found to be pro-cyclical, often coinciding with economic expansions and rising security prices and decreasing in recessions and when security prices are falling. From 2000 to 2019, the Boston Consulting Group (BCG) found that the correlation between the value of the MSCI World Index, a broad global equity market index, and the volume of corporate transactions was 0.80, as graphically shown in Exhibit 4 (Kengelbach, Gell, Keienburg, Degen, and Kim 2020).

Exhibit 4: Corporate Transactions and Equity Prices



There are several possible explanations for the connection between asset prices and corporate transaction activity:

- *Greater CEO confidence.* High and rising security prices are associated with high and rising CEO confidence. While this explanation is controversial, it is likely true that CEOs take actions, especially large actions, only when they are confident about the future.
- *Lower cost of financing.* Lower interest rates (higher bond prices) and higher equity prices (lower equity risk premiums) result in lower interest expense and less dilution to existing shareholders from debt and equity-financed transactions, respectively.

- *Management and boards know that their stock is overvalued.* Higher equity valuations are beneficial for equity-financed acquisitions, sales, and spin offs. If a company believes its stock is overvalued, it can use these transactions to exchange overvalued stock and realize value.

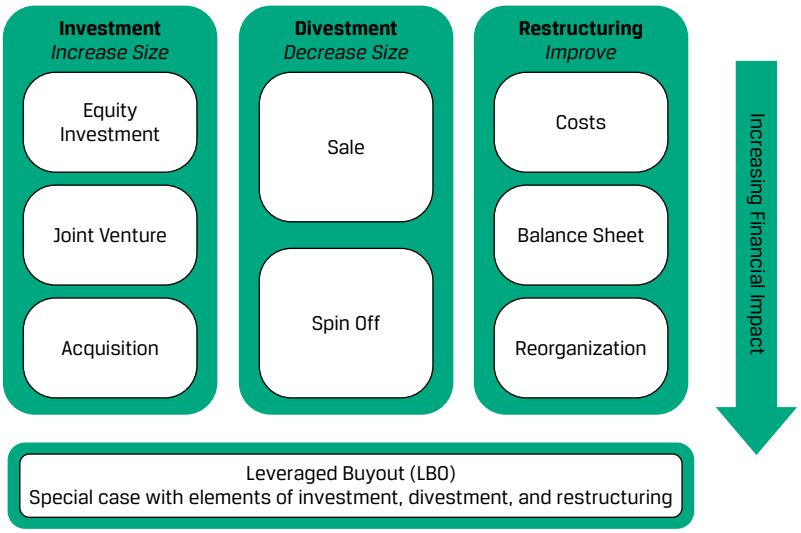
While rarer, corporate transactions in periods of weak economic growth have been found to create more value, on average, than those in periods of strong economic growth. BCG found that "weak economy" deals are associated with a nearly 10% higher increase in shareholder return over three years than "strong economy" deals (Kengelbach, Keienburg, Gell, Nielsen, Bader, Degen, and Sievers 2019). In other words, in periods of economic stress and risk aversion, there are benefits to risk-taking.

Besides asset prices, empirical research also suggests that corporate restructuring activity tends to come in industry-specific waves during regulatory changes, technological changes, or changes in the growth rate of the industry, collectively known as **industry shocks**. Essentially, corporate issuers take action to adapt to disruptions in their competitive environment, which we will see through examples throughout this reading.

Types of Corporate Restructurings

Within the general categories of investment, divestment, and restructuring, most corporate restructurings can be classified as one of nine specific types, as shown in Exhibit 5. Leveraged buyouts (LBOs) are a special type of restructuring that combines elements of each category.

Exhibit 5: Types of Corporate Restructurings



Investment Actions: Equity Investments, Joint Ventures, and Acquisitions

There are several common issuer-specific motivations for investment actions, including creating synergies, increasing growth, improving capabilities and access to resources, and finding undervalued investment opportunities.

Synergies refer to the combination of two companies being more valuable than the sum of the parts. Generally, synergies take the form of lower costs ("cost synergies") or increased revenues ("revenue synergies") through combinations that generate lower costs or higher revenues, respectively, than the sum of the separate companies.

Synergies in general and administrative costs, manufacturing and distribution expenses, research and development spending, and sales and marketing costs are typically achieved through economies of scale. Synergies in general and administrative expenses arise from the consolidation of redundant functions; for example, a company needs only one headquarters, support department, and executive management team. Synergies can also be created in manufacturing and distribution by increasing capacity utilization and route density if an acquirer and target have comparable products and customers.

Revenue synergies are typically created through economies of scope, such as the cross-selling of products to increase market share, or by increasing bargaining power with customers from reduced competition. For example, a bank that acquires an insurance company may directly market its newly acquired insurance products to its existing banking customers. In some industries, customers tend to prefer buying several products from the same company because it is easier to manage fewer relationships.

The desires for growth and for improving unique capabilities or securing resources are closely related to synergies. For instance, acquiring or investing in an established but faster-growing company can increase consolidated revenue growth. Since the 1980s, cross-border acquisitions have been a popular strategy for companies seeking to extend their market reach because in many parts of the world, waves of deregulation and privatizations of state-owned enterprises provided opportunities to acquire new manufacturing facilities, to enter into new foreign markets, and to find new sources of talent and production resources.

Moreover, a corporation may be dependent on another company for inputs or for distribution of its products. By acquiring that company, the acquirer will increase its vertical integration, which can result in lower costs and lower risks and provides a more compelling proposition to customers and investors. Such acquisitions can result in a competitive advantage for the acquirer and may reduce competition.

There are three types of investment actions:

- An **equity investment** refers to a company purchasing a material stake in another company's equity but less than 50% of its shares. The two companies maintain their independence, but the investor company has investment exposure to the investee and, in some cases depending on the size of the investment, can have representation on the investee's board of directors to influence operations. Equity investments are often made for one of several reasons: establishing a strategic partnership between companies, taking an initial step towards an eventual acquisition, or investing by an investor company into a company it believes is undervalued.
- In a **joint venture**, two or more companies form and jointly control a new, separate company to achieve a business objective. Each participant contributes assets, employees, know-how, or other resources to the joint venture company. The participants maintain their independence otherwise and continue to do business apart from the joint venture but share in the joint venture's profits or losses. Joint ventures are technically a type of equity investment (in a newly formed company) but are often larger than equity investments in several respects: size, operational control over joint venture, and time spent by management. A common use of joint ventures is conducting business in new markets; a company with a product or service will form a joint venture with another company with local business knowledge in a different, often international, market.

- An **acquisition** is when one company, the acquirer, purchases most or all of another company's, the target, shares to gain control of either an entire company, a segment of the other company, or a specific group of assets, in exchange for cash, stock, or the assumption of liabilities, alone or in combination. Once an acquisition is complete, the target ceases to exist as an independent company and becomes a subsidiary of the acquirer, and the acquirer will report a single set of financial statements that include the results of the target. Depending on the acquirer's integration approach, the management, operations, and resources across the companies will be consolidated. Each line on the financial statements (e.g., revenue, expenses, cash, cash flows from operations) is an aggregation of all consolidated subsidiaries of the issuer.

Acquisitions are distinct from equity investments and joint ventures because the acquirer acquires full control over the target and consolidates the financial statements, reflecting control.

Divestment Actions: Sales and Spin Offs

Motivations for divestment actions mirror those of investment actions because they represent a consolidation of the company's business. Common issuer-specific motivations to sell include focus, valuation, liquidity, and regulatory requirements.

Through either acquisitions or internal expansion over time, companies often operate across multiple different lines of business. Management may seek to improve performance by separating these businesses, either selling them to another company or spinning them off into independent companies. The source of performance improvement for the divested business may be increased management attention, focus, or effort and potential synergies with the acquirer.

Particularly in the case of spin offs, investors can be rewarded through increased stock prices that are tied directly to the performance of the specific business. Example 1 describes a divestment transaction intended to improve focus.

EXAMPLE 1

Daimler AG to Split into Daimler Truck and Mercedes-Benz

Until 2021, Daimler AG operated and reported in two business segments: Daimler Trucks & Buses and Mercedes-Benz Cars & Vans. In February 2021, Daimler AG announced that it will spin off Daimler Trucks & Buses into a separate Frankfurt-listed company and will rename itself (the remaining business segment) Mercedes-Benz, reflecting its focus on the car and van business that sells vehicles under that brand. The spin off will be effected by Daimler AG paying a stock dividend of newly created Daimler Trucks & Buses shares to Daimler AG shareholders, who will then own two separate types of shares: Daimler Trucks & Buses and Mercedes-Benz.

Ola Källenius, chairman of the Board of Management of Daimler AG, underlined that focus was the primary driver of the decision to split: "Mercedes-Benz Cars & Vans and Daimler Trucks & Buses are different businesses with specific customer groups, technology paths, and capital needs. Mercedes-Benz is the world's most valuable luxury car brand, offering the most desirable cars to discerning customers. Daimler Trucks & Buses supplies industry leading transportation solutions and services to customers. Both companies operate in industries that are facing major technological and structural changes. Given this

context, we believe they will be able to operate most effectively as independent entities, equipped with strong net liquidity and free from the constraints of a conglomerate structure."

While an undervalued target is a motivation for an investment action, an overvalued target—or at least one with a potentially higher valuation than the parent company—is a motivation for a divestment action. Many large corporate issuers own businesses that could be valued more highly by the capital markets if they were independent instead of inside the parent company. An issuer trading at a valuation lower than the sum of its parts is said to have a **conglomerate discount**, which is generally the result of diseconomies of scale or scope, owing to a deficit in focus, management effort, or investment; due to incompatible businesses; or because the capital markets have overlooked the business and its prospects. Example 2 describes a divestment transaction intended to reduce the conglomerate discount and realize that value for its stakeholders.

EXAMPLE 2

Novartis AG Divestments

Like other major pharmaceutical companies, Novartis AG had a sprawling portfolio of health care businesses. In the years since the appointment of a new CEO in 2013, Novartis has made several large divestments: It divested its vaccines and over-the-counter pharmaceutical business to rival GlaxoSmithKline, sold its animal pharmaceuticals business to Eli Lilly, another rival, and spun off Alcon, its eye care business, as an independent SIX-listed company.

Alcon was spun off, via a stock dividend payable to Novartis AG shareholders, on 9 April 2019. At the time of the spin off, Alcon equity was valued at over 30 times its EPS, while Novartis AG's price-to-earnings ratio (P/E) was half that amount. Two years after the spin off, Alcon shares had appreciated by over 35% while Novartis AG shares were roughly flat, demonstrating that Alcon was more valuable outside of its parent than inside. Alcon was the market leader in eye care devices and supplies, a growing market that does not face significant patent expirations like biopharmaceuticals and that requires less R&D.

The two remaining common issuer-specific motivations for divestment actions—liquidity and regulatory requirements—represent situations where external circumstances force the issuer to act. Typically, unsustainable financial leverage prompts a corporate issuer to sell one or more of its businesses for cash and use these proceeds to reduce its leverage. Because these transactions are frequently made at comparatively lower valuations, they are advantageous to the acquirer. The same may hold true for divestments required by regulators to avoid anti-competitive conduct and to safeguard against corporations building cartels and monopolies that would undermine competition. Regulators may force divestments as a requirement for their approval of a pending acquisition. Similarly, courts may impose divestiture as a remedy in an antitrust legal proceeding.

There are two main form of divestments:

- A sale, also known as a **divestiture**, is the other side of an acquisition; the seller sells a company, segment of a company, or group of assets to an acquirer. Once complete, control of the target is transferred to the acquirer. After a sale, the seller is no longer exposed to the divested business, because it has been exchanged for cash. The logic of the transaction is for capital to be reallocated to a better use (or returned to shareholders or creditors) and for the seller and acquirer to focus on their strengths.

- A **spin off** is when a company separates a distinct part of its business into a new, independent company. The term "spin off" is used to describe both the transaction and the separated component, while the company that conducts the transaction and formerly owned the spin off is known as the parent. The goal of a spin off is to increase management and employee focus by separating distinct businesses, awarding employees with stock-based compensation that is more directly tied to their efforts, and to remove any lack of compatibilities between the parent and the company that was spun off. Upon completion, the two companies will be independent, with their own debt and equity securities, financial reporting, management, and so on.

The choice between selling and spinning off a business involves many variables, but valuation is often among the most significant. A business of moderate size with many potentially interested acquirers will often receive a higher valuation. In a spin off, the investor receives the divested business's equity and must value it and make an investment decision; the parent receives less in proceeds. Spin offs may take several quarters to complete as independent business operations are created and new management teams and separate functions, such as legal and finance, are put in place. Because spin offs reduce, rather than increase, concentration of market power, they typically do not face strict regulatory scrutiny.

Restructuring Actions: Cost and Balance Sheet Restructuring and Reorganization

There are two general types of issuer-specific motivations for restructuring actions: opportunistic improvement and forced improvement. Opportunistic improvement includes actions that alter the business model, trim the cost structure, or modify the composition of the balance sheet—all with the intention to improve returns on capital.

An example of opportunistic change to an existing business model is **franchising**, where an owner of an asset and associated intellectual property can divest the asset and license the intellectual property to a third-party operator. A well-known use of franchising is in restaurants, where a franchisor licenses intellectual property, including recipes, trademarks, and restaurant operating procedures, to third-party restaurant owner operators—franchisees—in exchange for royalties, typically in the mid-single digit range of percentage of restaurant sales. Franchisors, such as the restaurant chain McDonald's or the tutoring company Kumon, operate lean businesses with royalty income and a small, fixed cost base primarily composed of senior management, advertising, and product development. Franchisees operate the individual businesses independently under the franchisor's name and are subjected to meeting strict operational and business requirements under the franchisor's supervision and oversight. Because franchisors do not own stores or employ workers, they are shielded from store-level cost trends; franchising shifts away many business risks from the franchisors to the franchisees.

Forced improvements are actions taken to enhance returns on capital when profitability falls below investors' required rate of return. Several factors contribute to this happening, including insufficient effort by management, falling customer demand, a worsening competitive landscape, or increasing overcapacity. Three alternatives are available: cost restructuring, balance sheet restructuring, and reorganization.

- A **cost restructuring** refers to actions with the goal of reducing costs by improving operational efficiency and profitability, often to raise margins to a historical level or to those of comparable industry peers. Cost restructurings tend to follow periods of company underperformance and are often part of larger structural changes to focus the corporate issuer's operations, to realize synergies after an acquisition, or when there is a threat of activist investors or an unwelcome acquisition by another corporate issuer. Two common ways of reducing costs are **outsourcing** and **offshoring**.

- A company outsourcing internal business services subcontracts specific, standardizable business processes, such as IT, call centers, HR, legal, and finance, to specialized third-party companies that can offer these services at lower costs through economies of scale from serving many clients. Manufacturing can also be outsourced; perhaps the best-known example is Apple outsourcing manufacturing of iPhones to Hon Hai Precision Ltd. Outsourcing reduces headcount, costs, and time spent on managerial oversight. Depending on what business processes are being outsourced, it can also free up expensive assets, such as office, manufacturing, and warehouse space, that can be disposed of or repurposed for alternative use. Apart from structural changes across the business, there are additional considerations, such as managing multiple contractual obligations with the outsourcing company that can introduce new risks in the decision to outsource.
- Offshoring refers to relocating operations from one country to another, mainly to reduce costs through lower labor costs or to achieve economies of scale through centralization, while still maintaining operations within the corporation. Offshoring may include starting up a new subsidiary in a foreign country or creating a multi-location business model. Global companies, such as Genpact, have created a multi-location model in which certain core business services are offshored and centralized to specific countries and managed by the company.

  Outsourcing and offshoring are often combined, where not only does a company outsource operations to another company but it also does so with foreign partners.

- A **balance sheet restructuring** alters the composition of the balance sheet by either shifting the asset composition, changing the capital structure, or both. On the assets side, most forms of restructuring involve selling assets to third parties for cash and concurrently entering into contractual agreements for their continued use. The seller reduces the risks of asset ownership, such as maintenance or obsolescence, but assumes other risks, such as higher, variable, and less predictable operating costs and lower revenues. Two common balance sheet restructuring transactions are sale leasebacks and dividend recapitalization.

  - In a **sale leaseback**, an asset owner sells an asset to a lessor for cash and immediately signs a lease agreement for its use, typically for the asset's remaining economic life. The result is that the asset owner receives cash up front, no longer owns the asset, yet, as the lessee, retains the right for future use. Typically, the annual lease expense is higher than the annual depreciation and amortization expense would have been because the lessor earns interest income from the transaction. Sometimes, when lessors can secure capital at lower cost, they can offer the lessee more attractive financing terms than the lessee could have obtained. Sale leasebacks are commonly used to secure liquidity on relatively short notice. Airlines used sale leasebacks during the COVID-19 pandemic to raise cash as their operations were suspended.
  - In a **dividend recapitalization**, the corporate issuer restructures the mix of debt and equity, typically from equity to debt through debt-financed dividends or share repurchases. The objective is to reduce the issuer's weighted average cost of capital by replacing expensive equity with cheaper debt. Because this recapitalization reduces the number of outstanding shares and the value of the corporation does not change,

these transactions can increase the value to shareholders. While the strategy can be beneficial if interest rates are low, it can increase financial leverage significantly and is thus often used only by issuers with revenue and operating cash flow stability.

- In a **reorganization**, a court-supervised restructuring process available in some jurisdictions for companies facing insolvency, a bankruptcy court assumes control of the company and oversees an orderly negotiation process between the company and its creditors for asset sales, conversion of debt to equity, refinancing, and so on. The company's business operations typically continue as normal, and existing management remains in place throughout the process. Once the company reaches an agreement with its creditors on a reorganization plan, it needs to receive an approval from the bankruptcy court to exit from the process and begin its operations with a lighter debt burden. Sometimes reorganization is a strategic measure to renegotiate contracts with unfavorable terms. While the process can take years, in some cases, companies reach an agreement with creditors prior to filing a formal petition for reorganization to the bankruptcy court and can seek approval from the court quickly. There have been cases of reorganizations lasting less than 24 hours.

  The reorganization process is different from the liquidation process, which typically occurs when the reorganization process has failed to achieve its objectives and the company is still unable to pay its debts and meet its other contractual obligations. During the liquidation process, the bankruptcy court takes control of the corporation, divests these assets of the corporations, and then distributes proceeds to all creditors according to legal criteria.

EXAMPLE 3

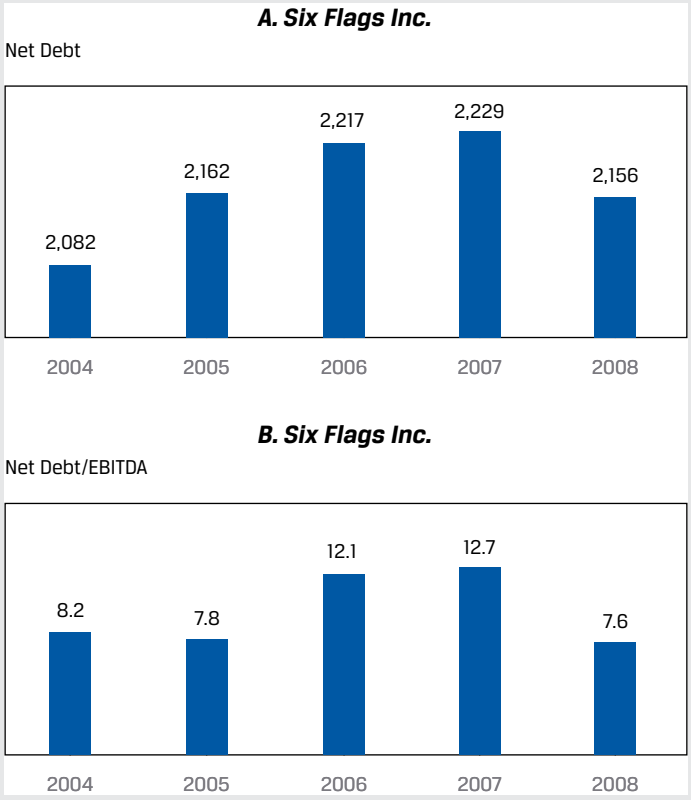
Six Flags Inc. and Six Flags Entertainment Corp.

Six Flags Inc., an NYSE-listed owner and operator of amusement parks, began to struggle financially in 2006, as revenues stagnated and EBIT fell by 50% from 2005 because the company's operating expenses were primarily fixed. Its share price fell by almost 50%, closing in 2006 around USD5 per share.

Performance worsened in 2007, as revenues grew slightly but EBIT decreased by 34%, and the share price fell another 50%, closing around USD2.50. Standard & Poor's and Moody's downgraded the company's credit rating (though it was already speculative grade) because the company's net debt-to-EBITDA ratio increased to nearly 13× (see Exhibit 6). The United States, the company's primary operating region, entered a recession in late 2007, and credit markets seized, which was especially challenging for Six Flags because it was a highly levered company unable to refinance its debt and it faced a mandatory dividend payment on its preferred stock.

The company implemented an extensive cost restructuring program in 2008, which did improve profitability despite a 24% fall in revenue, but the company defaulted on its debt obligations by missing interest payments and preferred stock dividend payments. By early 2009, Six Flags shares had fallen below USD1.00, which triggered a delisting of its shares on the NYSE. Six Flags declared Chapter 11 (reorganization) bankruptcy on 13 June 2009, seeking an agreement with creditors to eliminate a significant amount of its debt, though its theme parks continued to operate.

Exhibit 6: Six Flags Inc. Net Debt and Net Debt to EBITDA, 2004–2008



In May 2010, Six Flags and its bondholders reached an agreement and received approval from the bankruptcy court on a reorganization. The company's bondholders invested USD725 million in equity to recapitalize and convert over USD1 billion in existing debt to equity in the company. As a result, the bondholders would own virtually all of the equity and the company would emerge with USD784 million in net debt, a ratio of less than 3.0× expected EBITDA for 2010. Prior equityholders had lost their entire investment.

In June 2010, Six Flags shares were relisted on the NYSE under the same symbol but with a new company name, Six Flags Entertainment Corp.

Leveraged Buyouts

A special case of corporate restructuring is a **leveraged buyout (LBO)**, a series of actions that include investment, divestment, and restructuring. In an LBO, an acquirer uses a significant amount of debt to finance the acquisition of a target and then pursues restructuring actions, with the goal of exiting the target with a sale or public listing.

The term is reserved for leveraged acquisitions by investment funds led by a private equity general partner, with additional capital from limited partners that are often institutional investors, rather than acquisitions made by other corporate issuers. Often, funds that conduct LBOs are "buyout funds" that specialize in these transactions, because both investment and operational expertise are required. If the target is a listed company, an LBO may also be referred to as a "take-private" transaction, because the issuer's equity shifts from the public to the private market. The general and limited partners' investment returns are primarily a function of four variables: the purchase price, the amount of leverage, free cash flow (FCF) generated during the ownership period—which is often augmented by cost and balance sheet restructurings

and used to pay down debt—and the exit price. After the exit, the target typically has a substantially more leveraged capital structure than prior to the LBO, as in the case in Example 4.

EXAMPLE 4

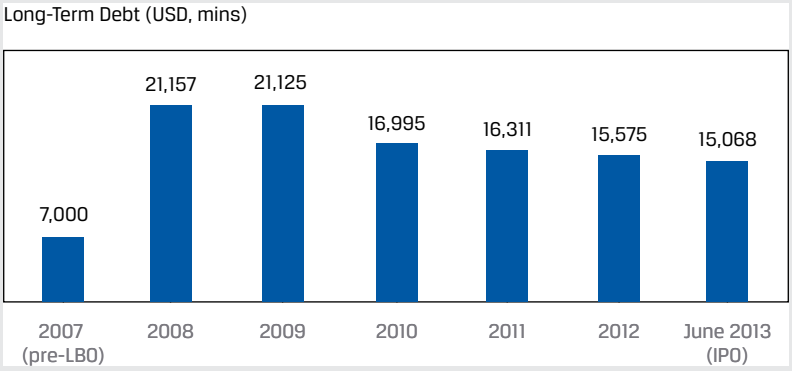
LBO of Hilton Hotels Corporation by Blackstone Group

In 2007, funds managed by the Blackstone Group acquired Hilton Hotels Corporation, an NYSE-listed global hotel and hospitality company in a transaction valued at approximately USD26 billion, with the Blackstone funds acquiring all outstanding shares of Hilton for USD47.50 per share, approximately USD20 billion in total, and assuming USD6 billion in existing Hilton debt. The Blackstone funds financed the cash portion of the transaction by borrowing USD14.5 billion and using 5.5 billion of equity.

Upon closing the acquisition at the end of 2007, Blackstone replaced the management and implemented a growth strategy, primarily through franchising. It also made several divestitures of highly priced, flagship properties.

In 2013, Hilton re-listed on the NYSE via an initial public offering. The trajectory of Hilton's long-term debt shows the effect of the leveraged buyout; long-term debt increased by a factor of 3 once it was taken private (see Exhibit 7). Blackstone funds used cash flows from operations to reduce indebtedness while Hilton was private, but it still returned to the public markets with a different capital structure.

Exhibit 7: Hilton Hotels Debt Position through Its LBO



Blackstone funds did not sell any shares in the IPO; instead, Blackstone gradually sold its stake over 2013–2018, which resulted in significant gains as Hilton shares appreciated over that time. By 2018, 11 years after its initial investment, the funds had realized a cumulative net profit of over USD11 billion on the initial equity investment of USD5.5 billion.

EXAMPLE 5

Corporate Evolution and Actions

1. Explain what actions XYZ Ltd., a fictional company, might take in response to its declining revenue growth rates of 8%, 7%, 4%, 1%, and 1%, respectively, during the past five years.

   Solution

   XYZ Ltd. may make an investment in a faster-growing business, such as an acquisition, to accelerate its growth rate. If XYZ Ltd. operates multiple separable businesses with different growth rates, management may seek to divest those with growth rates below the consolidated rate to accelerate growth.

2. Instead of making an acquisition, a corporate issuer could invest internally via capital expenditures or R&D. Describe one possible advantage and one possible disadvantage of making an acquisition versus internal investment.

   Solution

   A potential advantage of an acquisition over internal investment is time to market for a new product. Internally developing and launching a new product, especially one with which the company lacks experience, may take significantly longer than acquiring a company already commercializing the product. A potential disadvantage of an acquisition is cost. Most companies are valued at prices greater than the replacement costs of their assets, and additionally, most acquisition values are greater than market valuations in the capital markets, reflecting a premium for control.

3. Identify which one of the following is *least likely* to be a motivation for divestment actions.

   A. A. Increase revenue

   B. B. Increase focus

   C. C. Increase return on invested capital

   Solution

   A is correct. Divestment actions, including sales and spin offs, reduce the size of a company and its revenues. B is incorrect because divestments, by shrinking the number or scope of businesses in the corporate issuer, do increase focus. C is incorrect because divestments are often motivated by the desire to reduce capital investment in areas of low returns.

4. Recommend a corporate restructuring action for each condition in the *Conditions* column by selecting one of the actions in the *Corporate Restructuring Action* column.

Conditions	Corporate Restructuring Action
1. As a result of a significant downturn in commodity prices, an oil and gas producer faces negative cash flows from operations. The company has interest payments and debt maturities in the next 6 months.	A. Balance sheet restructuring
2. Slowing revenue growth, owing to its products reaching market share saturation in most markets	B. Reorganization
3. A company operates Segment A and Segment B. While Segment A is performing in line with expectations, Segment B revenue growth has declined, because of changes in its regulatory environment.	C. Acquisition
4. A company owns and operates 245 physiotherapy and sports medicine clinics. While the clinics are performing well, the business is capital and labor intensive because each clinic requires physical upkeep, capital equipment, and a skilled staff.	D. Spin off

Solution

B is correct. Reorganization is an appropriate action for companies facing significant debt levels that lack the financial wherewithal to service the debt. In reorganization, the company can negotiate adjusted debt payment plans with its creditors in an orderly fashion.
C is correct. An acquisition is a likely course of action for a company with slowing growth as it reaches maturity.
D is correct. Segments A and B have divergent performance and competitive landscapes. Unless there are significant synergies between the two, stakeholders may be better served if these businesses were separate rather than under the same ownership.
A is correct. The company should consider balance sheet restructuring, such as franchising the clinics to third-party owner operators—with the corporate entity retaining such functions as quality control, billing, marketing, and so on—or sale leasebacks of the fixed assets.

5. Identify the *most likely* reason for a corporate issuer to sell a segment of its business rather than spin it off.

A. The issuer desires liquidity.

B. The issuer operates capital-intensive, cyclical businesses.

C. The issuer operates multiple businesses with varying revenue growth rates and risk profiles.

Solution

A is correct. A sale is the disposal of a segment in exchange for consideration, often cash consideration, while a spin off generally raises less liquidity

because control is transferred to existing parent shareholders rather than sold. B is incorrect because capital intensity and cyclicality generally have no bearing on the choice of sale versus spin off. C is incorrect because this attribute is non-specific to sales or spin offs; it is an attribute that makes both options more logical.

6. What is the difference between a joint venture and an equity investment?

Solution

While the two share the same accounting treatment under IFRS and US GAAP, a joint venture is a specific type of equity investment, different from others in its formation, purpose, and governance.

	Joint venture	Equity investment
Formation	New legal entity formed when agreement is reached, and joint venture is financed	Investor acquires shares in existing investee company
Purpose	Specific—launch in new geography, new technology, etc.	General—investor company seeks exposure to investee
Governance	Controlled by participants by varying degrees	Investee maintains control over investee operations

7. Tyche, a fictional company, owns and operates 140 retail stores, including the real estate. As a result of a pandemic, Tyche's revenues and cash flows have declined severely, which may result in the inability to make interest and principal payments on its bonds and credit facility. Tyche management is considering selling the real estate for 40 of its stores to a commercial real estate investment fund and immediately leasing them (operating lease) for their remaining economic lives. Explain this type of action and its potential benefits and costs.

Solution

This is a balance sheet restructuring—more specifically, a sale-leaseback transaction. If completed, Tyche would receive cash from the sale and recognize a liability equal to the present value of future lease payments. Depreciation expense would be replaced with lease expense, which would include interest expense charged by the lessor. Potential benefits and costs of the sale leaseback versus asset ownership are as follows:

Benefits	Costs
Receive cash up front, to use for debt service	Lease expense includes interest expense, generally resulting in higher overall costs
Reduce costs of ownership, such as obsolescence and disposal	Increased indebtedness

8. Empirical research suggests that at least two-thirds of acquisitions fail to create meaningful value for acquirers. Explain why might this be the case.

Solution

The following are three common explanations for the failure of acquisitions to deliver meaningful value for acquirers:

1. Overpaying: While the target business and synergies associated with the acquisition may perform well, paying too great a price simply results in a negative net present value (NPV) transaction. In effect, value is transferred to the seller.
2. Under-realization of expected synergies: Acquisitions are often done with the assumption of greater revenue or greater profitability (lower costs) for the combined entity than for the two entities alone. Expected synergies are reflected, in part, in the acquisition price. These synergies can be overestimated, perhaps due to unrealistic assumptions.
3. Integration issues: Acquirers often change the business processes and resources of targets to match their existing processes. Additionally, target management is typically replaced. Such changes can result in the deterioration of the performance of the target.

AstraZeneca plc, an LSE-listed pharmaceutical company, announced its acquisition of Alexion Pharmaceuticals, a NASDAQ-listed biotechnology firm focused on therapeutics for rare diseases. AstraZeneca will pay USD60 in cash and 2.1243 AstraZeneca American Depositary Shares for each Alexion share, for a total consideration of USD39 billion, based on share prices just prior to the announcement.

AstraZeneca expects to realize annual recurring cost synergies of USD500 million (pre-tax), primarily from commercial and manufacturing efficiencies as well as savings in corporate costs. The achievement of the full USD500 million in synergies is expected by the end of the third year after the acquisition closes. AstraZeneca expects to incur cash costs in the first three years following the close of the transaction, reaching USD650 million in Year 3.

Prior to the acquisition announcement, expectations for revenues and total operating expenses for AstraZeneca and Alexion for the next three years are as shown in Exhibit 8.

Exhibit 8: AstraZeneca and Alexion Years 1–3 Figures, Prior to Acquisition (USD millions)

AstraZeneca	Year 1	Year 2	Year 3
Revenues	22,090	24,384	26,617
Operating expenses	16,418	17,948	19,277

Alexion	Year 1	Year 2	Year 3
Revenues	4,130	4,990	6,069
Operating expenses	1,952	2,201	2,646

9. Calculate the announced cost synergies as a percentage of Alexion's Year 3 standalone operating expenses.

Solution

By the end of the third year after the acquisition closes, AstraZeneca expects to realize USD500 million in synergies. As a standalone company, Alexion's total expected annual operating expenses are USD2,646 million. Therefore, cost synergies represent 500/2,646 = 19% of Alexion's standalone operating expenses.

10. Assuming synergies are realized in the amounts of USD166 million, USD333 million, and USD500 million in Years 1–3, respectively, and that cash costs of USD217 million, USD433 million, and USD650 million are incurred in Years 1–3, respectively, calculate expected operating income in each of Years 1–3 for the combination of AstraZeneca and Alexion.

Solution

Given the information in Exhibit 6 and the assumptions for the pace of synergies and cash costs associated with the combination, the process for forecasting operating income is as follows in Exhibit 9.

Exhibit 9: Combined AstraZeneca and Alexion Operating Income for Years 1–3

AstraZeneca + Alexion	Year 1	Year 2	Year 3
AstraZeneca Revenues	22,090	24,384	26,617
Plus: Alexion Revenues	4,130	4,990	6,069
Combined Revenues	26,220	29,374	32,686
AstraZeneca OpEx	16,418	17,948	19,277
Plus: Alexion OpEx	1,952	2,201	2,646
Minus: Synergies	(166)	(333)	(500)
Plus: One-Time Costs	217	433	650
Combined OpEx	18,421	20,249	22,073
Operating Income (Revenue minus OpEx)	7,799	9,125	10,613

11. Explain the impact of the acquisition of Alexion on AstraZeneca's revenue growth in Years 2 and 3 and its operating margin in Years 1–3.

Solution

Exhibit 10 shows AstraZeneca's revenue growth rate and operating margin prior to the acquisition for Years 1–3.

Exhibit 10: AstraZeneca Prior to Acquisition of Alexion

AstraZeneca	Year 1	Year 2	Year 3
Revenues	22,090	24,384	26,617
Growth Rate		10%	9%
Operating Expenses	16,418	17,948	19,277

AstraZeneca	Year 1	Year 2	Year 3
Operating Income	5,672	6,436	7,340
Operating Margin	26%	26%	28%

Exhibit 11 shows AstraZeneca's revenue growth rate and operating margin after the acquisition for Years 1–3.

Exhibit 11: AstraZeneca after the Acquisition of Alexion

AstraZeneca	Year 1	Year 2	Year 3
Revenues	26,220	29,374	32,686
Growth Rate		12%	11%
Operating Expenses	18,421	20,249	22,073
Operating Income	7,799	9,125	10,613
Operating Margin	30%	31%	32%

As the exhibits show, the acquisition has positively impacted the revenue growth rate by approximately 200 bps in each of Years 2 and 3 and the operating margin by 400 bps–500 bps in Years 1–3. Even though cash costs associated with the acquisition exceeded the synergies, Alexion is a higher-margin, higher-growth business than AstraZeneca.

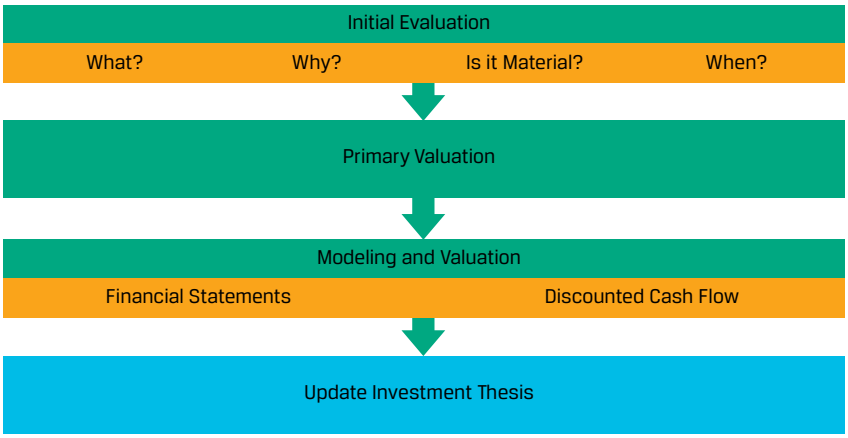
EVALUATING CORPORATE RESTRUCTURINGS

3

- ☐ explain the initial evaluation of a corporate restructuring
- ☐ demonstrate valuation methods for, and interpret valuations of, companies involved in corporate restructurings

Investment analysts evaluate corporate restructurings in a process composed of three general steps before updating their investment thesis for the corporate issuer in light of the restructuring, as shown in Exhibit 12.

Exhibit 12: Evaluating a Corporate Structural Change



Initial Evaluation

An analyst's initial evaluation of a corporate restructuring involves answering four questions:

- What is happening?
- Why is it happening?
- Is it material?
- When is it happening?

Answering the first and second questions, covered in Section 2, typically involves reading the issuer's press release, securities filings, conference call transcripts, and relevant third-party research, if available. Once the relevant information is gathered, the analyst interprets the action and the issuer's motivations. Professional skepticism is required because management will virtually always frame restructuring positively.

The third question in the initial evaluation step is determining materiality. Analysts have finite time and must prioritize the most impactful announcements and focus on material changes. Materiality can be defined in this context along two dimensions: size and fit.

The larger a restructuring, the more likely it is to affect an issuer's future cash flows and financial position and thus its value. The size of a structural change can be measured in different ways for different types of restructurings. For restructuring involving a transaction, such as an acquisition, the value of the transaction (sum of cash paid, value of stock issued, and value of target's debt assumed) relative to the issuer's enterprise value (EV) is a good metric. For restructurings not involving a transaction, such as a cost restructuring, it is the scale of the intended action that is material—for instance, the announced cost reduction as a percentage of annual revenue or operating expenses. In any case, the size of the issuer matters: a EUR100 million acquisition may be large for one acquirer but small for another.

One rule of thumb for what constitutes a "large" acquisition is that the total transaction value exceeds 10% of the acquirer's enterprise value prior to the transaction. Most acquisitions (>95%) are under USD1 billion in value and over 80% of targets are private companies (source: Putz 2017). Therefore, for large-capitalization corporate issuers, most acquisitions are, in fact, immaterial.

Because an action of any size could signal a change in strategy or focus, an analyst should also assess how the current structural change fits in with earlier actions, previously announced strategies, and the analyst's own expectations for the issuer. For example, a company making a small acquisition of a company in a different industry or different business model could be interpreted as management changing its strategy or an admission, through their actions, that the issuer's existing business model has problems, as in the case in Example 6.

EXAMPLE 6

Farfetch Ltd. Acquires New Guards Groups

Farfetch Ltd. is a UK-based, publicly traded e-commerce company that primarily operates an online marketplace for branded luxury products. Luxury brands list their products and connect to consumers through Farfetch's website and mobile app but retain control over most of the sales process, such as product selection, pricing, promotions, and so on. Farfetch earns revenue through commissions on each sale.

In July 2019, Farfetch announced the acquisition of the privately held New Guards Groups, an apparel company that sells exclusively licensed luxury streetwear under the brand Off-White, for total consideration of USD704 million, which amounted to approximately 8% of Farfetch's total enterprise value just prior to the announcement.

Despite being relatively small financially, the acquisition was seen as a problem by investors, for two reasons: (1) It meant that Farfetch would start competing with sellers on its own platform by selling products itself, and (2) it represented a shift in business model away from an "asset-lite" online marketplace connecting third-party sellers to consumers towards an online retailer selling products under its own brands, with inventory risk and higher operating costs.

Farfetch shares, listed on the NYSE, fell 45% the day after the acquisition was announced.

A measure that is often used to judge all types of restructurings is the equity price returns on the day of the announcement; for a positive (negative) stock price reaction to the merger announcement on the day of the announcement, the merger is presumed to generate (decrease) value. However, research has cast doubt on the usefulness of this measure.

For instance, Rehm and West (2016) found no correlation between the announcement effects of a deal and its excess total return to shareholders two or more years later. More than half of the companies that initially saw negative price reactions were found to realize excess total shareholder returns over the longer term. Similarly, Ben-David, Bhattacharya, and Jacobsen (2020) reported that share price reaction on the announcement date has no correlation with transaction outcomes or future performance of an acquirer.

Finally, an important consideration in the initial evaluation is timing, because there is a substantial time delay, at least several quarters if not years, between the announcement of the transaction and its completion. The transaction is not reflected on the balance sheet of the acquirer until the date of closing, which is also when revenues, expenses, and cash flow effects are consolidated in the acquirer's financial statements. The length of the timeline is largely determined by the size and complexity of the transaction. For instance, a small-scale cost restructuring may take a matter of months to implement, and its effect would show up relatively quickly. But for a large acquisition or spin off, it may take over 12 months from announcement to the closing, on top of the time spent planning during the pre-announcement stage.

A key source of uncertainty in timing is the receipt of the required shareholder, creditor, and/or regulatory approvals. Depending on the corporate issuer's bylaws, shareholder approval may be required for a corporate transaction; typically, transactions large in scale and value must be approved by the shareholders. Additionally, most jurisdictions have antitrust laws and government authorities that enforce competition law. Approval from these authorities for acquisitions is typically a pre-requisite in all jurisdictions where the transacting entities conduct business. Transactions in some sectors tend to receive more scrutiny than others, particularly if they are perceived to affect geopolitical standing, industry competition, or employment levels.

Importantly, capital market participants discount the expected impact of a change (including the risk of it not closing) into security prices upon the announcement.

Preliminary Valuation

For restructurings that are material and involve transactions, an analyst will conduct a preliminary valuation of the target, typically using relative valuation methods to judge whether management uses stakeholder resources optimally to meet investors' required rate of return on capital. Three valuation methods analysts use in this step, often in combination, are comparable company analysis, comparable transaction analysis, and premium paid analysis. Discounted cash flow valuation will be discussed in the next step in the evaluation process with modeling.

Comparable Company Analysis

Comparable company analysis uses the valuation multiples of similar, listed companies to value a target. In this approach, the analyst first defines a set of other companies that are similar to the target under review.

Analysts often use a data aggregator, such as Bloomberg, FactSet, or Capital IQ, to create a set of comparable companies and transactions. The aggregator allows the user to specify time periods, the characteristics of the company, the involved parties, and the transaction (e.g., size, geography, form of payment). This set may include companies within the target's primary industry as well as companies in similar industries with similar financial characteristics, such as size, revenue growth rate, operating margin, and return on invested capital. The set should include as many similar companies as possible though not be diluted by dissimilar companies. A useful starting point for developing the comparable set is the company's peer group identified by management in its annual financial disclosures or provided by data aggregators.

Once a set of comparable companies is defined, the next step is to calculate valuation multiples and metrics based on the current market prices of the comparable companies. Common multiples used include enterprise value to EBITDA or sales, price to earnings, and, less commonly, enterprise value to free cash flow to the firm. Enterprise multiples are often used because they are less sensitive to differences in capital structure. An analyst may also use sector-specific valuation multiples, such as enterprise value to subscribers for technology companies, enterprise value to reserves for oil and gas companies, or enterprise value to funds from operations for real estate. Analysts typically then calculate the mean, median, and range for the chosen multiples and either compare those values for the target or apply the multiple to develop an estimated target value.

Comparable company analysis is more often employed for assessing the valuation of targets in spin offs than for acquisitions or sales because acquirers pay a premium for control; therefore, acquisition or sale multiples typically exceed trading multiples.

EXAMPLE 7

Spin Off Valuation

Wang, an analyst at Choice Fund covering the media and telecoms sector, has been asked to assess the valuation of a potential spin off by one of the companies owned by the fund.

The company operates and reports two segments: Connectivity and Media. Connectivity is a capital-intensive cable television and broadband distribution business, and Media produces and licenses television series, which are distributed to its Connectivity customers and other cable companies on traditional television, as well as to online video streaming companies. In the last 12 months, the company reported the following financial results.

Segment	Revenues (EUR mln)	EBITDA (EUR mln)
Connectivity	20,100	7,638
Media	8,000	2,000
Consolidated	28,100	9,638

The company is currently trading at an enterprise value of EUR96,380 million, or an EV/EBITDA multiple of 10.

A spin off of the Media segment has long been rumored, because it does not have material synergies with the Connectivity segment and has been under-invested in by the current management team, resulting in slower revenue growth than its peers.

1. If Wang finds that the median Connectivity and Media peers are trading at enterprise value-to-EBITDA multiples of 13 and 6, respectively, estimate whether a spin off of the Media segment has the potential to:

   A. decrease stakeholder value.

   B. increase stakeholder value.

   C. neither increase nor decrease stakeholder value.

   Solution

   B is correct. Multiplying the peer median EV/EBITDA multiples and last 12 months' segment EBITDA results in an estimated enterprise value of EUR111,294 million, which is more than 15% higher than the current enterprise value of EUR96,380 million. Based on this result, it seems that the market is undervaluing either the Connectivity segment, the Media segment, or both relative to peers. This may be justifiable, but we would need more information about peers and their prospects versus this company's prospects to evaluate it.

2. Explain why the Media segment might not be valued at the peer median multiple by market participants in a spin off.

   Solution

   Three general reasons for a different valuation from peers are differences in expected growth, differences in profitability, and differences in the risk profile. Relative to the median peer, the Media segment may differ on any or all these dimensions, particularly in profitability because the current management team has under-invested in the business; the period of under-in-

vestment may now necessitate a period of high investment, which would depress free cash flow.

3. The company incurs EUR250 million per year in corporate and headquarters operating costs. The company allocates the EUR250 million to the Connectivity and Media segments proportional to revenues. If the Media segment is spun off, estimate its annual EBITDA adjusted for the allocation of corporate and headquarters operating costs.

   Solution

   The Media segment accounted for 8,000/28,100 = 28.5% of the last 12 months' revenue. If the EUR250 million in corporate and headquarters operating costs are allocated based on its revenue contribution, then an allocation of 250 million × 28.5% = EUR71 million would be deducted from EBITDA, resulting in an adjusted figure of EUR2,000 million – EUR71 million = EUR1,929 million.

4. Wang's colleague suggests that a flaw in this analysis is that it fails to consider the capital structure of the Media segment if it's spun off; what if the parent transfers a significant amount of debt to it? Interpret the colleague's concern and justify the analysis.

   Solution

   While the amount of debt transferred to it and its capital structure generally will impact the equity and debt valuations of the Media segment if it's spun off, Wang's analysis is not specific to any capital structure, because Wang is using enterprise value multiples. However, Wang's colleague could be correct if leverage, for example, is substantially higher for the Media segment spin off than for its peers, which could increase its cost of capital and thus its overall enterprise value.

Advantages of Using Comparable Company Analysis

- This method provides a reasonable approximation of a target company's value relative to similar companies in the market. It assumes that "like" assets should be valued on a similar basis in the market.
- With this method, most of the required data are readily available.
- The estimates of value are derived directly from the market. This approach is unlike the discounted cash flow method, in which the value is determined based on many assumptions and estimates.

Disadvantages of Using Comparable Company Analysis

- A comparable set of listed companies, especially in a larger number of potential comparables, can be difficult to find or may not exist. This is especially true for large, industry-leading corporations that have unique business models. For example, Alphabet Inc., the NASDAQ-listed technology company, owns and operates YouTube, a leading social video platform. In 2020, YouTube earned USD19.8 billion in advertising revenues, making it one of the largest digital advertising companies in the world. Given its size, unique business model, and revenue growth rate over 30%, a peer group for YouTube would be challenging to construct if Alphabet were to spin it off.

- The method is sensitive to market mispricing. Suppose that all the comparable companies are currently overvalued by the market. A valuation relative to those companies may suggest a value that is too high, should the values be revised downward upon a correction.
- This approach yields an estimated *fairtrading* price for the target company. To estimate a fair *takeover* price, analysts must add an estimated takeover premium.

Comparable Transaction Analysis

Comparable transaction analysis is closely related to comparable company analysis, except that the analyst uses valuation multiples from historical acquisitions of similar targets rather than trading multiples of similar listed companies. Similar to comparable company analysis, an analyst would look to descriptive statistics, such as the mean, median, and range of valuation multiples, and apply professional judgment to estimate or evaluate a target's value.

Unlike comparable company analysis, the valuation multiples in comparable transaction analysis include takeover premiums, because they reflect historical acquisitions (sales).

EXAMPLE 8

Comparable Transaction Analysis

Joel Hofer, an investment analyst, is evaluating the price General Health Company paid to acquire Medical Services, Inc., of USD55.00 per share. He has already taken the initial step and assembled a sample of comparable transactions, all of which closed within the last two years. Details on the acquisition prices and relevant variables are shown in the following table.

Valuation Variable (USD)	Acquired Company 1	Acquired Company 2	Acquired Company 3
Acquisition share price	35.00	16.50	87.00
Earnings per share	2.12	0.89	4.37
Cash flow per share	3.06	1.98	7.95
Book value per share	9.62	4.90	21.62
Sales per share	15.26	7.61	32.66

The next step in the process is for Hofer to calculate the multiples at which each company was acquired:

Relative Valuation Ratio	Acquired Company 1	Acquired Company 2	Acquired Company 3	Mean
P/E	16.5	18.5	19.9	18.3
P/CF	11.4	8.3	10.9	10.2
P/BV	3.6	3.4	4.0	3.7
P/S	2.3	2.2	2.7	2.4

After reviewing the distribution of the various values around their respective means, Hofer is confident about using the mean value for each ratio because the range in values above and below the mean is reasonably small. Based on his experience with this industry, Hofer believes that cash flows are a particularly important predictor of value for these types of companies. Consequently, instead

of finding an equally weighted average, Hofer has decided to weight the P/CF multiple higher (40%) than the others (20% each) for calculating a weighted average estimated price.

Target Company Valuation Variables

	Target Company (a)	Comparable Companies' Valuation Multiples	Mean Multiple Paid for Comparable Companies (b)	Estimated Takeover Value Based on Comparables (c = a × b)	Weight (d)	Weighted Estimates (e = c × d)
Earnings per share	USD2.62	P/E	18.3	47.95	20%	USD9.59
Cash flow per share	USD4.33	P/CF	10.2	44.17	40%	USD17.67
Book value per share	USD12.65	P/BV	3.7	46.81	20%	USD9.36
Sales per share	USD22.98	P/S	2.4	55.15	20%	USD11.03
Weighted average estimate						**USD47.65**

In sum, Hofer estimated a fair takeover value for Medical Services, Inc., of USD47.65 per share, which is 13% below the price at which General Health Company acquired it. Based on Hofer's analysis, General Health Company overpaid.

Advantages of Using Comparable Transaction Analysis

- The value estimates come from actual transaction prices for similar targets. This approach is unlike the discounted cash flow method, in which the value is determined based on many assumptions and estimates.
- It is not necessary to separately estimate a takeover premium. The takeover premium is embedded in the comparable transaction multiples.

Disadvantages of Using Comparable Transaction Analysis

- The market for corporate control is illiquid. There may be no or few comparable transactions. In these cases, analysts may try to use data from similar or related industries. These derived values may not be accurate for the specific industry and may have to be adjusted.
- Historical valuation multiples reflect not only historical industry conditions, such as the industry growth rate and regulatory environment, but also historical macroeconomic conditions, such as the business cycle, interest rates, equity price levels, and tax rates, that can significantly influence transaction multiples. The analyst may need to exclude transactions before a certain date (e.g., prior to 10 years ago) or make adjustments to reflect changes in these conditions.
- There is a risk that past acquirers over- or underpaid. Transactions where there were multiple competing offers typically rachet up the final transaction price. The analyst should investigate the comparable transactions to better reconcile these valuations.

Premium Paid Analysis

To estimate or judge a sale value or acquisition price for a listed issuer, an analyst could also calculate an estimated **takeover premium**. This premium is the amount by which the per-share takeover price exceeds the unaffected price expressed as a percentage of the unaffected price and reflects the price of control, or the control premium—the amount shareholders require to relinquish their control of the company to the acquirer. For historical transactions, the premium is calculated as follows:

$$\text{PRM} = \frac{(\text{DP} - \text{SP})}{\text{SP}}, \tag{1}$$

where

PRM = takeover premium (as a percentage of stock price)

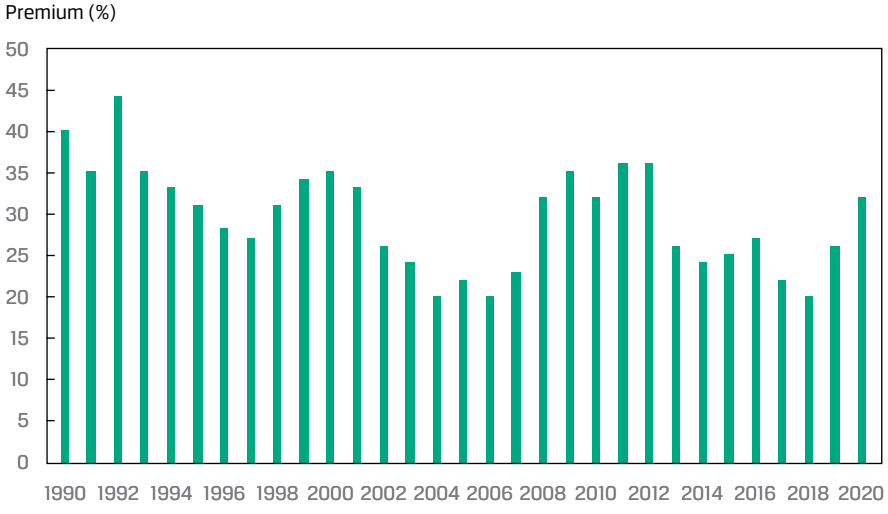
DP = deal price per share of the target

SP = unaffected stock price of the target

The analyst must be careful to exclude any pre-announcement increase in the price that may have occurred because of rumors in the press or speculation. Common approaches to control for this include using a share price from one week prior to the announcement or sometimes even longer, particularly if there were persistent rumors preceding the transaction, or a trading volume–weighted average price over a week- or month-long period.

To estimate a sale price using the premium paid analysis, the analyst will compile takeover premiums paid for companies like the target and calculate descriptive statistics, such as the mean, median, and range, in a similar fashion to comparable company and transaction analyses. The premium paid will vary by the same factors responsible for variation in valuation multiples: the target's outlook and risk profile. The annual median share price premium paid for acquisitions announced from 1990 to 2018, based on the premium to share price from the week prior to deal announcement, has been just over 30%, with a range of 20%–40% (Exhibit 13).

Exhibit 13: Average Annual Acquisition Premium Paid, 1990–2018



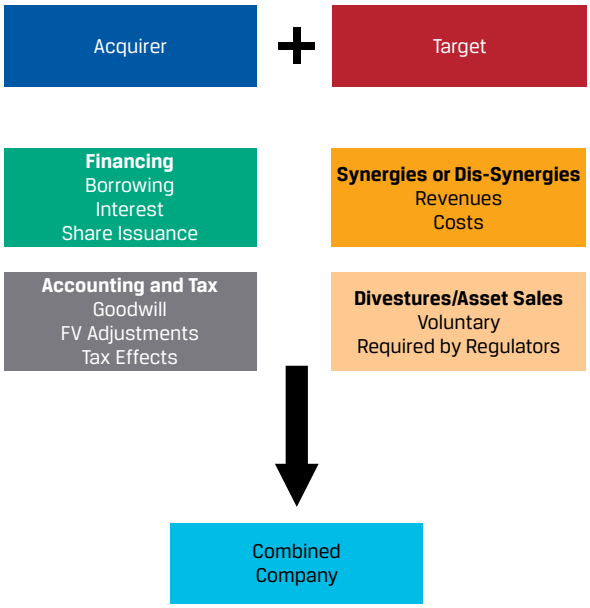
Source: Kengelbach, Keienburg, Gell, Nielsen, Bader, Degen, and Sievers 2019.

4 MODELING AND VALUATION

☐ demonstrate how corporate restructurings affect an issuer's EPS, net debt to EBITDA ratio, and weighted average cost of capital

The next step of the evaluation process is estimating financial statements that include the effect of the restructuring, known as **pro forma financial statements**. Pro forma financial statements include important inputs for equity and credit evaluation, including revenue, EPS, the ratio of net debt to EBITDA, and free cash flow measures. The process for creating pro forma financial statements depends on the type of restructuring and situational specifics, which will be demonstrated in the case studies in Sections 4–6. As an initial example, the process for an acquisition is illustrated in the diagram in Exhibit 14.

Exhibit 14: Financial Modeling Steps for Acquisition



First, the financials for the acquirer and target are combined. Next, the effect of financing the transaction—debt issuance, increased interest expense, share issuance, lower cash—is included. Third, the effect of synergies or the lack of synergies and incompatibilities in forecasted revenues and costs is projected. Fourth, the effect of any divestitures, either voluntarily or involuntarily as required by regulators as a condition of approving the acquisition, are incorporated. Finally, adjustments are made for recognition of goodwill and the increase in the book value of the target's assets and liabilities to fair value.

An alternative presentation of these steps, in terms of how lines on the pro forma income statement (typically the first pro forma financial statement created) are estimated, is shown in Exhibit 15. After the pro forma financial statements are created, such ratios as EPS, net debt to EBITDA, and free cash flow are straightforward to calculate.

Exhibit 15: Pro Forma Income Statement (Acquisition) Modeling

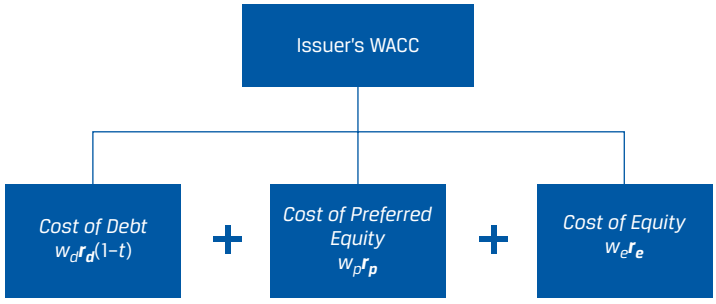
Revenue	1. Combine acquirer and target revenues. 2. Add revenue synergies or subtract the cost of incompatible activities (dis-synergies).
Operating expenses	1. Combine acquirer and target operating expenses. 2. Subtract cost synergies or add the cost of incompatible activities (dis-synergies).
Depreciation and amortization	1. Combine acquirer and target depreciation and amortization. 2. Add amortization of acquired intangible assets.
Other expense or income	1. Combine acquirer and target other expense or income.
Interest expense	1. Start with current acquirer interest expense. 2. Add increased interest from new debt issuance and revised interest rate.
Income taxes	1. EBT-weighted average of tax rates of acquirer and target; estimate usually provided by issuers
Shares outstanding	1. Start with current acquirer shares outstanding 2. Add shares from any share issuance

Pro Forma Weighted Average Cost of Capital

While the pro forma financial statements contain most of the inputs needed for a discounted cash flow valuation model (unlevered or levered free cash flow), a key variable is the required rate of return to discount the pro forma free cash flows. This is typically estimated using a weighted average cost of capital (WACC) approach. Like the financial statements, WACC must be adjusted to reflect the anticipated corporate restructuring.

Recall that an issuer's cost of capital is a market-value weighted average of its cost of debt, equity, and other capital, as shown in Exhibit 16.

Exhibit 16: Weighted Average Cost of Capital Components



A restructuring can change both the weights of each type of capital (w_d, w_p, and w_e) in the capital structure and the costs of each type of capital (r_d, r_p, and r_e). The simplest example is an issuer acquiring a company for cash and financing it entirely with debt. If the equity price does not change materially, the capital structure will shift from equity to debt as debt increases (i.e., w_d increases and w_e decreases). Conversely, if an issuer sells a division for cash and uses that cash to retire debt, its capital structure will likely shift from debt to equity.

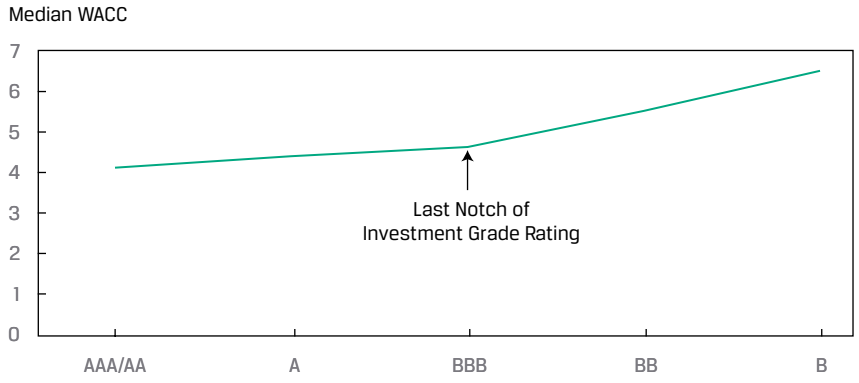
While changes in capital structure weights are straightforward, estimating the effect of a restructuring on the costs of debt and equity capital is more challenging. Recall that costs of capital are influenced by several factors and conditions both inside and outside the issuer, shown in Exhibit 17. Corporate restructurings change the costs of capital by changing these factors. For example, an acquisition that increases leverage and decreases profitability will generally result in an increase in the cost of capital.

Exhibit 17: Factors and Conditions Influencing Issuers' Costs of Capital

Factor/Condition	Primary measures
Profitability	EBITDA or EBIT to sales
Volatility	Standard deviation of revenues Standard deviation of EBITDA
Leverage	Debt to EBITDA
Assets that can serve as collateral	Asset specificity, liquidity, active market for the asset
Prevailing interest rates	Market reference rates Corporate credit spreads

For this reason, it is common to see investment-grade issuers structure transactions to maintain their investment-grade rating and minimize their weighted average cost of capital. Moving from an investment-grade to a speculative-grade credit rating is empirically associated with a several hundred basis point increase in WACC (see Exhibit 18).

Exhibit 18: Median US Large-Cap WACC for Each Credit Rating Notch



EXAMPLE 9

Competing Offers for Kansas City Southern

Kansas City Southern (KCS), an NYSE-listed railroad company, owns and operates railroads in the southern United States, northern Mexico, and Panama. In 2021, the company received acquisition offers from two Canada-based, TSX-listed railroad companies: Canadian Pacific Railway Limited (CP) and Canadian National Railway Company (CN). The table summarizes the terms of the two offers.

	CP	CN
Consideration:		
Offer price per KCS share, % premium	USD274 per share 23% premium	USD325 per share 45% premium
Mix of consideration per KCS share	0.489 CP shares USD90 in cash	1.129 CN shares USD200 in cash
Assumed KCS debt	USD3.8 billion	USD3.8 billion
Total consideration (enterprise value)	USD29 billion	USD33.6 billion
Financing:*		
New borrowings	USD8.6 billion	USD19 billion
Share issuance	44.5 million CP shares	103 million CN shares
Post-acquisition debt to EBITDA	4.0×	4.6×
Current KCS shareholders ownership of combined company	25%	12.6%

**The balance of financing is funded with cash on hand.*

Following the close, CP expects its outstanding debt will be approximately USD20.2 billion and stated that they "remain committed to maintaining an investment-grade credit rating." CN expects its outstanding debt would be approximately USD33 billion after its acquisition but also remains committed to maintaining an investment-grade credit rating.

1. If, prior to the acquisition, CN has 713 million shares outstanding trading at USD105 per share, estimate how the weights of debt and equity in its capital structure would change after the acquisition closes as a result of an acquisition of KCS under the proposed terms, assuming a constant share price and that the book value of debt equals its market value.

   Solution

   Following the close of the acquisition, CN expects its outstanding debt to total USD33 billion, after assuming USD3.8 billion in existing KCS debt and issuing USD19 billion itself. Therefore, prior to the acquisition, CN had approximately (33 – 3.8 – 19) = USD10.2 billion in debt and (713 million shares outstanding × USD105 per share) = USD74.9 billion in equity, resulting in a mix of debt and equity of 12% and 88%, respectively.
   After the acquisition, CN will have USD33 billion in debt and 816 (713 + 103) million shares outstanding, which, priced at USD105 per share, is USD85.7 billion in equity. The change in capital structure is shown in Exhibit 19.

Exhibit 19: CN Capital Structure before and after Proposed Acquisition of KCS

CN Capital Structure	Pre-Acquisition	Post-Acquisition
Debt %	12%	28%
Equity %	88%	72%

2. To increase the amount of the combined company that current KCS shareholders would own after the close, identify what change CN would have to make to the proportion of CN stock in its consideration.

   A. Increase

   B. Decrease

   C. Keep the same

   Solution

   A is correct. By issuing more CN stock to existing KCS stockholders, KCS stockholders would own more CN stock after the acquisition and, thus, own more of the combined company.

3. Identify CN's primary means of financing a higher amount of cash in the consideration versus CP's offer. CN plans to:

   A. offer a greater proportion of stock.

   B. issue a greater amount of debt.

   C. reduce operating expenses.

   Solution

   B is correct. By issuing a greater amount of debt and using the proceeds in its cash offer, CN's offer has a greater amount of cash in the consideration. A is incorrect because a greater proportion of stock would mean a lower proportion of cash in the consideration. C is incorrect because reducing operating expenses does not directly affect the mix of consideration offered.

4. Identify the *least* attractive element of CN's offer versus CP's offer, from the perspective of KCS shareholders.

   A. Higher proportion of cash in the consideration

   B. Higher total enterprise value

   C. Higher leverage for the combined company

   Solution

   C is correct. The higher leverage (4.6 versus 4.0 debt-to-EBITDA ratio) for the combined company is less attractive because it introduces higher credit risk and magnifies any downside risks, such as less-than-expected synergies or integration problems. Accordingly, the higher leverage may result in investors having higher required rates of return (higher cost of capital for the issuer).

5. If credit rating agencies were to warn CN that its investment-grade credit rating were in jeopardy, identify a modification that CN could make to its consideration or financing to bolster its credit rating.

   A. Borrow from credit facilities rather than issue bonds.

B. Use a greater proportion of cash on hand.

C. Use a greater proportion of stock.

Solution

C is correct. By using a greater proportion of stock in the consideration, less cash and therefore less debt issuance are needed to finance the acquisition. A is incorrect because the difference between bank debt and bond debt is immaterial to credit. B is incorrect because using cash on hand would have the same impact on net debt as borrowing.

You create a pro forma income statement for CN to evaluate the impact of its proposed acquisition of KCS. First, you compile forecasted income statements for the two companies on a standalone basis, shown in Exhibit 20 (see Example 9 worksheet in the the downloadable Microsoft Excel workbook).

Exhibit 20: CN and KCS Standalone Historical and Forecasted Summary Income Statements

Canadian National	2019A	2020A	2021A	2022F	2023F	2024F
Revenue	14,917	13,819	15,063	15,966	16,765	17,603
Operating expenses	(7,762)	(7,453)	(7,833)	(8,303)	(8,718)	(9,154)
D&A	(1,562)	(1,589)	(1,614)	(1,765)	(1,916)	(2,016)
Other income	374	321	353	353	353	353
Interest expense	(538)	(554)	(604)	(640)	(672)	(706)
Income taxes	(1,213)	(982)	(1,180)	(1,235)	(1,279)	(1,338)
Net income	4,216	3,562	4,185	4,376	4,533	4,742
Shares outstanding	723	713	713	710	707	704
Diluted EPS	5.83	5.00	5.87	6.16	6.41	6.74
Kansas City Southern	**2019A**	**2020A**	**2021A**	**2022F**	**2023F**	**2024F**
Revenue	2,866	2,632	2,922	3,097	3,283	3,480
Operating expenses	(1,629)	(1,272)	(1,285)	(1,363)	(1,444)	(1,531)
D&A	(351)	(358	(380)	(403)	(427)	(452)
Other income	18	(29)	0	0	0	0
Interest expense	(116)	(151)	(154)	(163)	(161)	(165)
Income taxes	(248)	(204)	(276)	(292)	(313)	(333)
Net income	540	618	827	876	938	999
Shares outstanding	100	94	90	87	84	81
Diluted EPS	5.40	6.57	9.19	10.07	11.17	12.33

Based on the announcement and your own research, you make the following assumptions:

- The acquisition closes at the end of 2021, with 2022 a full year for the combined entity.
- CN announced that it expects to achieve annual cost synergies that reach USD1 billion by 2024; you assume that the synergies start at 1/3 of that in 2022, stepping up to 2/3 in 2023, and the full USD1 billion is achieved in 2024. There are no revenue synergies.

- The interest rate CN will pay on USD33 billion in outstanding debt—the amount it will have outstanding as of the acquisition closing—is 5.0%, and you assume CN's gross debt and interest rate remain constant to 2024.
- Amortization of acquired intangible assets is USD800 million per year from 2022 to 2024.
- Effective income tax rate is 22% from 2022 to 2024.

6. Given the information provided and the process outlined in Section 3, estimate a pro forma income statement, including diluted EPS, for CN.

Solution

Forecasted diluted EPS is USD5.24, USD5.89, and USD6.60 per share for fiscal years 2022, 2023, and 2024, respectively, as shown in Exhibit 21 (see Example 9 worksheet in the the downloadable Microsoft Excel workbook).

Exhibit 21: CN Pro Forma Income Statement, 2022–2024F

CN + KCS = New CN	2022F	2023F	2024F
CN revenue	15,966	16,765	17,603
KCS revenue	3,097	3,283	3,480
New CN revenue	19,063	20,047	21,083
CN operating expenses	8,303	8,718	9,154
KCS operating expenses	1,363	1,444	1,531
Synergies	(333)	(667)	(1,000)
New CN operating expenses	9,332	9,495	9,685
CN D&A	1,765	1,916	2,016
KCS D&A	403	427	452
Amortization of acquired intangible assets	800	800	800
New CN D&A	2,968	3,143	3,268
CN other income	(353)	(353)	(353)
KCS other income	0	0	0
New CN other income	(353)	(353)	(353)
New CN interest expense	1,650	1,650	1,650
New CN income taxes	1,203	1,345	1,503
New CN net income	4,264	4,768	5,329
CN shares outstanding	710	707	704
CN shares issued	103	103	103
New CN shares outstanding	813	810	807
New CN diluted EPS	5.24	5.89	6.60

EVALUATING INVESTMENT ACTIONS

5

☐ evaluate corporate investment actions, including equity investments, joint ventures, and acquisitions

This section and the two that follow are composed of case studies of corporate restructurings based on real-world events and demonstrate the evaluation process, discussed in prior sections, undertaken by analysts upon their announcement. The case studies, primarily selected based on their real-world prevalence, expand on and provide context for the concepts introduced earlier.

Equity Investment

Example 10 describes a large, mature company that faces growth and regulatory challenges. As is common in these situations, the company seeks to improve its prospects by making an investment in a fast-growing competitor.

EXAMPLE 10

Dilmun Inc. and Spina Ltd.

Dilmun Inc., a fictional company, makes and sells traditional combustible cigarettes and cigars. Over the last 10 years, its sales volumes have declined annually by a mid- to high-single-digit rate, as the number of smokers in its major markets has dwindled, but strong pricing power has enabled the company to maintain stable revenues. Dilmun is the market share leader in its geographies and remains highly profitable, with operating margins exceeding 35% and returns on invested capital exceeding 30%.

In recent years, two trends have emerged that have challenged Dilmun, beyond the impact of declining volumes:

1. Some lawmakers have advocated limiting nicotine in tobacco products to non-addictive levels and banning menthol and other flavorings.
2. The proliferation of ESG-focused strategies by asset managers has pressured Dilmun's share price because Dilmun's business model scores low on social metrics. Additionally, shareholders have engaged with the company's board and management to change its products or business model to better align with ESG goals.

At the end of 20X3, Dilmun made the following announcement by press release:

Dilmun Inc. today announces it signed and closed a USD1.2 billion investment in, and service agreements with, Spina Ltd., a market leader in e-vapor. The investment and service agreements will accelerate Spina's strategy to switch smokers of traditional cigarettes to e-vapor products. Dilmun's investment represents a 30% interest in Spina equity, valuing the company at USD4.0 billion on an enterprise value basis. Spina will remain fully independent.

As part of the service agreements, Spina will have access to Dilmun's sales and marketing infrastructure, including

- premium shelf and display space at over 225,000 retail locations worldwide, up from less than 75,000 today, and

- marketing material inside of Dilmun-branded cigarette packs and access to contact information from customer loyalty programs.

While public health authorities recommend against the use of e-vapor products or any tobacco product, they have acknowledged their increased safety over traditional cigarettes.

"We are taking significant action to prepare for a future where adult smokers choose non-combustible products over cigarettes by investing in Spina, a market leader," said Dilmun's chairman and chief executive officer. "Lower-risk products are a promising way forward for all stakeholders. Today, we are making a significant investment toward that goal."

Dilmun will finance the transaction with borrowings on its credit facility, which has an interest rate of 600 bps, and expects to maintain its investment-grade credit rating. Spina intends to use the investment proceeds to support product development and marketing. Spina does not intend to pay dividends for the foreseeable future.

Summary historical and forecasted financial data for Dilmun Inc. and Spina Ltd., prior to the transaction, are shown in Exhibit 22 and Exhibit 23, which are also provided in the Example 10 sheet in the the downloadable Microsoft Excel workbook. Dilmun does not own any other equity method investments, and income (loss) from associates is reported as an operating item on its income statement. Dilmun expects amortization expense associated with the transaction, related to fair value adjustments of identifiable net assets, of USD10 million per year.

Exhibit 22: Dilmun Inc. Summary Financial Data (USD millions)

	20X1	20X2	20X3	20X4E
Net revenues	25,434	25,744	25,576	25,670
EBITDA	8,656	9,191	9,839	10,140
EBIT	8,406	8,941	9,589	9,890
Interest expense	(817)	(747)	(705)	(705)
Income tax expense	(1,594)	(1,721)	(1,866)	(1,929)
Net income	5,995	6,473	7,018	7,256
Diluted EPS	3.06	3.33	3.69	3.94
Diluted shares outstanding	1,960	1,943	1,901	1,840
Total debt	12,847	13,881	13,894	13,894
Cash and cash equivalents	4,878	4,569	1,253	2,000

Exhibit 23: Spina Ltd. Summary Financial Data (USD millions)

	20X1	20X2	20X3	20X4E
Net revenues	200	350	600	990
EBITDA	(300)	(400)	(400)	(350)
EBIT	(320)	(460)	(480)	(450)
Interest expense	0	0	0	0
Income tax expense	0	0	0	0
Net income (loss)	(320)	(460)	(480)	(450)

	20X1	20X2	20X3	20X4E
Diluted EPS	(0.37)	(0.53)	(0.56)	(0.52)
Diluted shares outstanding	860	860	860	860

1. Rather than this form of investment, identify other types of actions Dilmun could take with respect to Spina, and explain one advantage and one disadvantage of those alternatives, relative to the equity investment.

   Solution

   Two other types of actions Dilmun and Spina could have made to achieve similar objectives are acquisition and joint venture.

Alternative	Advantage vs. Equity Investment	Disadvantage vs. Equity Investment
Acquisition	▪ By acquiring control, Spina couldn't take actions that are against Dilmun's interest, such as sign other partnerships or reduce prices significantly.	▪ Substantially greater capital investment is required. If the target is risky, a smaller initial investment may be wise.
Joint Venture	▪ Dilmun and Spina would have governance representation, which reduces risks for Dilmun.	▪ A larger investment may be required, and Spina's independence may be an important element of its success to date.

2. Based on the information provided in the press release, explain both Dilmun's and Spina's motivations for this transaction.

   Solution

   Dilmun's motivations are investment exposure to a growing company and unique capabilities in the form of Spina's market-leading products. Dilmun is also seeking to diversify its business away from the declining (by volume) combustible cigarette market to an adjacent alternative that shares sales channels and customers.
   Spina's motivations for entering the investment agreement are the synergies offered by the marketing agreement with Dilmun and the cash proceeds that enable it to increase investment to strengthen its position. The equity investment structure allows the current management and board to remain in control but benefit from the capabilities of a larger company.

3. Exhibit 24 shows current enterprise values and sales for the last 12 months for five listed companies comparable to Spina Ltd. Explain how the valua-

tion multiple for Spina implied by the transaction differs from those for the comparable companies.

Exhibit 24: Comparable Company Analysis for Spina Ltd. (USD millions)

	Enterprise Value	Net Revenues (TTM)
Comparable A	1,211	269
Comparable B	821	82
Comparable C	973	191
Comparable D	768	157
Comparable E	1,346	224

Solution

The equity investment by Dilmun valued Spina Ltd. at USD4,000 billion, or an EV/Sales (trailing twelve months, or TTM) multiple of 6.7 (4,000/600 million in net revenues in 20X3). The EV/Sales (TTM) multiples of the comparables, including the median and average, are shown in Exhibit 25. The transaction multiple for Spina Ltd. was higher than both the peer median and average and is the second highest in the group, behind only Comparable B, valued at 10×.

Exhibit 25: EV/Sales Multiples of Comparables for Spina Ltd.

	Enterprise Value (USD mln)	Net Revenues (TTM)	EV/S
Comparable A	1,211	269	4.5
Comparable B	821	82	10.0
Comparable C	973	191	5.1
Comparable D	768	157	4.9
Comparable E	1,346	224	6.0
Median			5.1
Average			6.1

4. Discuss two potential reasons for the difference in valuation multiples for Spina Ltd. versus its comparables that should be investigated further.

Solution

Two potential reasons for the difference in valuation of Spina Ltd. versus its comparables that warrant further investigation are growth prospects and risk profile. On a standalone basis or by virtue of its partial ownership by and service agreement with Dilmun, Spina Ltd. may have faster revenue growth than its peers. Additionally, as a market leader with an established presence in the e-vapor category and the highest revenue, Spina likely has lower risk than its competitors, which may face significant problems as they scale.

5. Based on the information in the exhibits, estimate the effect of Dilmun's investment in Spina on Dilmun's debt-to-EBITDA ratio and its diluted EPS in 20X4E. Assume that Dilmun maintains its estimated effective tax rate.

Solution

As a result of the debt-financed investment in Spina, Dilmun's debt-to-EBITDA ratio in 20X4E will increase from 1.37 to 1.51 and its diluted EPS will decrease from USD3.94 to USD3.85 per share. Exhibit 26 shows the effect of the investment by reconciling the pre-investment to pro forma summary income statements. The investment reduces operating income by Dilmun's share of Spina's net loss (0.3 × 450 = 135) plus the amortization (10) associated with the investment and increases interest expense by an amount equal to the 600 bps in interest expense multiplied by the increase in debt. The dilutive effect on EPS is partially offset by tax effects.

Exhibit 26: Estimated Effect of Spina Investment on Dilmun Inc.

	Before Investment	Investment	After Investment
	20X4E	20X4E	20X4E
Net revenues	25,670	0	25,670
Income from associates		(145)	(145)
EBITDA	10,140	(145)	9,995
EBIT	9,890	(145)	9,745
Interest expense	(705)	(72)	(777)
Income tax expense	(1,929)	46	(1,883)
Net income	7,256	(171)	7,084
Diluted EPS	3.94	—	3.85
Diluted shares outstanding	1,840	—	1,840
Total debt	13,894	1,200	15,094
Cash and cash equivalents	2,000	0	2,000
Debt to EBITDA	1.37		1.51

Joint Venture

Example 11 shows a common joint venture arrangement: one company with a brand, technology, and know-how co-invests with a company in a foreign market that brings its established local market presence. This example also demonstrates an important step in the life cycle of many joint ventures: a partial buyout by one of the companies, which has significant financial statement impacts to both companies—particularly the acquirer, because the accounting model changes from the equity method to consolidation.

EXAMPLE 11

Opone-Hapalla Automotive Alliance SA

Opone SA, a fictional company headquartered in Brazil, designs, manufactures, and sells vehicles. While it sells some vehicles under its own brands, most of its business is a joint venture with Hapalla AG, named Opone-Hapalla Automotive Alliance SA (OHAA). OHAA was formed in 20X1 to make and sell Hapalla-branded vehicles in Latin America. Besides its participation in OHAA, Hapalla AG operates only in select European markets. OHAA has increased its annual vehicle sales volume from less than 10,000 in 20X1 to 1.5 million in 20X7. The joint venture has a contractually agreed-upon term of 25 years.

Opone SA and Hapalla AG disclose summary financial results and positions for OHAA in the notes to their financial statements and share equally in the joint venture's profit and loss, as well as any dividends paid. Exhibit 27 and Exhibit 28 (also in the Example 11 worksheet in the the downloadable Microsoft Excel workbook) show summary financial data from Opone SA's 20X7 annual report and consensus forecast figures for 20X8E. OHAA is the only joint venture Opone SA has an investment in.

Exhibit 27: OHAA (Joint Venture) Summary Financial Data (BRL millions)

	20X5	20X6	20X7	20X8E
Net revenues	111,599	138,704	169,441	208,412
Profit after tax	10,476	12,491	15,267	18,757
Dividends paid	4,000	6,000	40,000	32,000
Cash and equivalents	60,418	62,537	32,461	12,653

Exhibit 28: Opone SA Summary Financial Data

	20X5	20X6	20X7	20X8E
Net revenues	5,305	4,377	3,862	3,910
Cost of sales	(5,119)	(4,091)	(3,788)	(3,793)
SG&A expense	(1,765)	(1,294)	(1,556)	(1,450)
Joint venture income	5,238	6,246	7,634	9,379
Interest expense	(138)	(114)	(95)	(95)
Income tax expense	(34)	(65)	(167)	(190)
Profit after tax	3,487	5,059	5,890	7,761
Cash flows from operations	(2,547)	(2,830)	(726)	(800)
Dividends received from joint venture	2,000	3,000	20,000	16,000
Capital expenditures	(624)	(461)	(795)	(560)
Free cash flow (non-IFRS measure)	(1,171)	(291)	18,479	14,640

1. Based on the information provided, explain how the OHAA joint venture is mutually beneficial for Opone SA and Hapalla AG.

Solution

The OHAA joint venture is clearly beneficial for Opone SA, because its income from the joint venture accounts for more than 100% of the company's net income; the company's other operations incur a net loss. The joint venture is beneficial for Hapalla AG because it enables the company to grow beyond its current markets and share the risks (and rewards) of international expansion with a partner that has an established presence in Latin America.

2. Exhibit 29 shows P/E and P/FCF valuation multiples for Opone SA and five listed comparable companies. Compare Opone SA's valuation to its comparables and explain why Opone SA's P/E differs significantly from its P/FCF multiple.

Exhibit 29: Comparable Company Analysis for Opone SA

	P/E (TTM)	P/FCF (TTM)
Comparable A	11	17
Comparable B	12	11
Comparable C	9	18
Comparable D	13	19
Comparable E	15	14
Opone SA	21	7

Solution

Exhibit 30 shows Opone SA's peer median and average P/E and P/FCF multiples. Opone SA is more expensive than peers in terms of P/E but far cheaper than peers on a P/FCF basis. The primary reason behind the difference in Opone SA's P/E and P/FCF multiples is that in 20X7, OHAA joint venture income recognized was less than 40% of dividends earned. Based on the financial data provided, it appears that OHAA has been reducing its cash balance through dividends that are well in excess of profits.

Exhibit 30: Comparable Company Analysis for Opone SA

	P/E (TTM)	P/FCF (TTM)
Comparable A	11	17
Comparable B	12	11
Comparable C	9	18
Comparable D	13	19
Comparable E	15	14
Median	12	17
Average	12	16

	P/E (TTM)	P/FCF (TTM)
Opone SA	21	7

In the beginning of 20X8, Hapalla AG offered Opone SA BRL45 billion in cash to increase its stake in OHAA by 25% and replace the contractual term of 25 years with a perpetual agreement that Hapalla AG's interest in the joint venture would not exceed 75%.

3. If the OHAA joint venture has no debt, compare the valuation of OHAA implied by Hapalla AG's offer with those of comparable companies in Exhibit 29 on a P/E (TTM) basis.

Solution

Hapalla AG's offer of BRL45 billion to acquire a 25% interest in OHAA values OHAA at BRL180 billion (45/0.25) on an enterprise value basis, or BRL147,539 million in equity value after subtracting cash and cash equivalents at year-end 20X7. This equity value is 10.0× the joint venture's profit after tax in 20X7, which is 2.0 lower than the comparable company average and median of 12×.

4. If Opone SA were to accept Hapalla AG's offer at the beginning of 20X8, estimate the net effect of the transaction on Opone SA's 20X8 income statement based on Exhibit 28. Assume that Opone SA would account for its remaining interest in OHAA using the equity method, the carrying value of the OHAA joint venture interest on Opone SA's balance sheet as of 31 December 20X7 is BRL26 billion, and the effective tax rate is 10%.

Solution

The transaction would have two major effects. First, Opone SA would de-recognize half of its interest (BRL13 billion) from its balance sheet and recognize BRL45 billion in cash proceeds from the sale and a gain of (45 13 =) BRL32 billion. Second, the proportion of OHAA net income that Opone SA would recognize as joint venture income would fall from 50% to 25%. Exhibit 31 shows the effect of the transaction on the 20X8 income statement.

Exhibit 31: Pro Forma Opone SA Income Statement for Sale of Half of OHAA Joint Venture

	Before 20X8E	Transaction	After 20X8E
Net revenues	3,910	—	3,910
Cost of sales	(3,793)	—	(3,793)
SG&A expense	(1,450)	—	(1,450)
Joint venture income	9,379	(4,689)	4,689
Gain on sale	0	32,000	32,000
Interest expense	(95)	—	(95)
Income tax expense	(190)	—	(3,526)
Profit after tax	7,761		31,735

5. Describe the effect of the transaction on Hapalla AG's financial statements.

Solution

As of the date of the transaction close, Hapalla AG would change its accounting for OHAA from the equity method to consolidation and recognize a non-controlling interest that represents Opone SA's 25% interest. As a result, joint venture income will no longer be recognized while revenues, expenses, and other financial statement lines would, as of the close, reflect consolidated figures. On the balance sheet, Hapalla AG would de-recognize the joint venture investment and recognize OHAA's assets and liabilities, while reducing its cash balance for consideration transferred to Opone SA.

Acquisition

The next example illustrates an acquisition transaction, but unlike the prior Kansas City Southern example, the target is a segment of a company. While the financial statement impact is not categorically different for the acquirer, this type of transaction involves another party: a seller that continues to operate after the transaction. Example 12 is a common situation in which the seller is divesting a business segment to another company that is similar to the target but with much greater scale and focus. Additionally, the type of consideration transferred in this transaction results in the seller holding an equity investment in the acquirer.

EXAMPLE 12

Tulor to Acquire Retail Segment from Caracol Petroleum

Tulor Inc. is an Australian operator of convenience stores, including standalone corner shops, larger convenience stores, and stores with petroleum stations.

Caracol Petroleum is a global vertically integrated oil and gas company. Its Upstream operations focus on the exploration and production of oil and natural gas, its Downstream operations include several oil refineries, and its Retail business operates a large network of petroleum stations, all with convenience stores. As a result of a prolonged decline in oil prices and high financial leverage, Caracol Petroleum is seeking to improve its balance sheet and realize value for shareholders.

At the beginning of 20X2, Tulor and Caracol announced that the companies had reached an agreement in which Tulor would acquire the Retail segment of Caracol for AUD2 billion in cash and 80 million Tulor common shares for a total consideration of AUD3 billion, based on the unaffected share price prior to the announcement. Tulor and Caracol expect the transaction to close on 31 December 20X2.

Caracol will use the cash proceeds from the transaction to strengthen its balance sheet by retiring debt. Based on an effective tax rate of 18%, Caracol expects to receive after-tax cash proceeds of AUD1.6 billion, all of which will be used for debt retirement. In connection with the agreement, Caracol has agreed to not dispose of any Tulor shares for five years from the close of the acquisition.

Tulor intends to finance the cash portion of the consideration with cash on hand and by borrowing AUD1 billion from its credit facilities, which has already been committed by its lenders. Tulor intends to maintain an investment-grade credit rating.

Tulor expects to realize AUD125 million in EBITDA synergies by Year 3, primarily by expanding its private label products in the newly acquired stores, utilizing its scale in negotiating with suppliers, and closing unprofitable stores. Summary historical and consensus forecast financial data for Tulor and the Retail segment of Caracol are shown in Exhibit 32 and Exhibit 33, which are also included in the Example 12 worksheet in the the downloadable Microsoft Excel workbook.

Exhibit 32: Tulor Summary Financial Data (Pre-Acquisition)

	20X1	20X2	20X3E
Net revenues	19,896	20,891	21,726
Cost of sales	(15,121)	(15,835)	(16,447)
Operating expense	(3,183)	(3,343)	(3,476)
EBITDA	1,592	1,713	1,803
D&A	(597)	(627)	(652)
EBIT	995	1,086	1,152
Interest income	22	24	24
Interest expense	(370)	(388)	(401)
Income tax expense	(129)	(144)	(155)
Net income	517	578	620
Diluted EPS	0.80	0.89	0.96
Diluted shares outstanding	648	648	648
Cash and equivalents	4,400	4,800	4,800
Total debt	5,692	5,969	6,169

Exhibit 33: Caracol Petroleum, Retail Segment (Pre-Acquisition) Summary Financial Data

	20X1	20X2	20X3E
Net revenues	4,974	5,223	5,432
Cost of sales	(4,004)	(4,204)	(4,372)
Operating expense	(796)	(836)	(869)
EBITDA	174	183	190
D&A	(99)	(104)	(109)
EBIT	75	78	81

1. Explain Tulor's and Caracol's motivations for pursuing this transaction.

Solution

Tulor's motivations are two-fold: synergies and growth. By utilizing its superior scale (Tulor had a store footprint six times the size of Caracol's) and scope, Tulor expects to significantly increase Caracol's stores' annual EBITDA by the end of the third year after closing. This also results in a >15% increase in Tulor's EBITDA prior to the acquisition in three years, which is likely a rare opportunity in a mature industry, such as convenience stores; Tulor's revenues are growing at a low-single-digit rate.

Caracol's motivations to sell are to strengthen its balance sheet by using the proceeds to retire debt and, likely, to sharpen its focus on its Upstream and Downstream segments. Based on the significant synergies announced by Tulor, it's likely that Caracol is not the best owner for the Retail segment.

2. Evaluate the valuation implied by the purchase price against comparable companies based on the selected financial data for companies in Exhibit 34. Explain two reasons why the transaction multiple paid by Tulor (based on 20X2 EBITDA) may differ from the median comparable.

Exhibit 34: Comparable Company Analysis for Caracol Petroleum, Retail Segment

	Enterprise Value	EBITDA (TTM)
Comparable A	2,422	295
Comparable B	1,642	287
Comparable C	1,946	163
Comparable D	1,536	201
Comparable E	2,692	264

Solution

Exhibit 35 shows the EV/EBITDA of the median comparable and the implied multiple for Tulor's acquisition of Caracol Petroleum's Retail segment. While the median comparable trades at 8× 20X2 EBITDA, the acquisition multiple was double that, at 16×. There are two likely reasons for the much higher valuation in the acquisition: control and synergies.

The acquisition multiple includes a control premium paid by Tulor, while the trading multiples in comparable company analysis reflect only prices for non-controlling stakes. Control allows a buyer to make operational decisions, which in this case enables Tulor to realize significant synergies through its existing business.

If synergies of AUD125 million (in Year 3) are included in the analysis, the acquisition multiple falls to 10×, which is within the peer range.

Exhibit 35: Comparable Company Analysis—Caracol Petroleum, Retail Segment

	Enterprise Value	EBITDA (TTM)	EV/EBITDA
Comparable A	2,422	295	8
Comparable B	1,642	287	6
Comparable C	1,946	163	12
Comparable D	1,536	201	8
Comparable E	2,692	264	10
Median			8
Caracol Petroleum Retail	3,000	183	16
Caracol Petroleum Retail + Synergies		308	10

3. Estimate the impact of the transaction on Tulor's debt-to-EBITDA ratio and diluted EPS in 20X3, assuming the following:

   a. AUD42 million in cost synergies is realized,

   b. incremental amortization expense associated with fair value adjustments of identifiable net assets acquired is AUD200 million per year,

   c. Tulor earns 50 bps in annualized interest income on its cash and pays an interest rate of 600 bps on its debt, and

   d. the effective tax rate is 20%.

Solution

Based on the information and assumptions provided, compared to 20X3E estimates prior to the acquisition, the acquisition results in Tulor's diluted EPS decreasing by AUD0.26 per share, to 0.70, and its debt-to-EBITDA ratio increasing by 0.1×, to 3.5× EBITDA. While the acquisition increases EBITDA, it results in a decrease in income before taxes because of the incremental amortization expense and interest expense. The increase in shares outstanding from the equity portion of the consideration is alone responsible for a loss of AUD0.26 per share in EPS. The full analysis is shown in Exhibit 36.

Exhibit 36: Pro Forma Tulor Summary Income Statement

	Before 20X3E	Acquisition	After 20X3E
Net revenues	21,726	5,432	27,158
Cost of sales	(16,447)	(4,372)	(20,819)
Operating expense	(3,476)	(869)	(4,345)
Cost synergies	—	42	42
EBITDA	1,803	232	2,035
D&A	(652)	(309)	(960)
EBIT	1,152	(77)	1,075
Interest income	24	(5)	19
Interest expense	(401)	(60)	(461)
Income tax expense	(155)		(127)
Net income	620		506
Diluted EPS	0.96		0.70
Diluted shares outstanding	648	80	728
Cash and equivalents	4,800	(1,000)	3,800
Total debt	6,169	1,000	7,169
Debt to EBITDA	3.4		3.5

EVALUATING DIVESTMENT ACTIONS

6

☐ evaluate corporate divestment actions, including sales and spin offs

Either through acquisitions or internal expansion over time, companies often become engaged in multiple businesses. Management may seek to improve performance by separating these businesses, either selling them to another company or spinning them off as independent companies.

While investment analysts often cannot fully evaluate a corporate restructuring until details are announced, companies sometimes publicly announce "strategic reviews" or similarly titled initiatives regarding a part of their business or its entirety before a specific restructuring action is taken and announced. The outcome of the review can vary, so analysts must estimate the potential impact of different scenarios and judge their likelihood. Market participants will often price in risk-adjusted estimates of actions when the strategic review is announced, so an investment perspective at the time of the strategic review is necessary.

Example 13 describes a strategic review intended to evaluate the focus of a company, any conglomerate discount that may exist, and possible actions to realize value for its stakeholders.

EXAMPLE 13

Benefit Ltd. Strategic Review

Benefit Ltd., a fictional company headquartered in Johannesburg, South Africa, sells consulting services and subscription-based human capital management software called BenefitsExchange. The company operates and reports two segments: Consulting and BenefitsExchange. Summary financial data for Benefit Ltd. for the last 12 months (LTM) and the prior-year period are shown in Exhibit 37, Exhibit 38, and Exhibit 39 (see Example 13 worksheet in the the downloadable Microsoft Excel workbook).

Exhibit 37: Benefit Ltd. Segment Data (ZAR millions)

Revenues	Prior-year period	Last 12 months (LTM)
BenefitsExchange	55	75
Consulting	402	404
Total revenues	457	479
Segment EBITDA	**Prior-year period**	**LTM**
BenefitsExchange	(10)	(5)
Consulting	83	84
Total segment EBITDA	73	79

Exhibit 38: Benefit Ltd. Reconciliation of Segment EBITDA to Consolidated Net Income and EPS

	Prior-year period	LTM
Total segment EBITDA	73	79
D&A	(19)	(20)
Corporate/unallocated cost	(4)	(4)
EBIT	50	55
Other expense (income)	0	0
Interest expense	8	9
Income taxes	10	11
Net income	32	35
Shares outstanding	1,454	1,454
Diluted EPS (cents)	2.20	2.41

Exhibit 39: Benefit Ltd. Balance Sheets, Most Recent Quarter (MRQ) and Prior Year

	Prior year	MRQ
Cash and equivalents	140	173
Other current assets	110	97
Total current assets	250	270
Non-current assets	540	590
Total assets	790	860
Current debt	20	20
Other current liabilities	110	120
Total current liabilities	130	140
Non-current debt	230	230
Other non-current liabilities	130	185
Total equity	300	305
Total liabilities and equity	790	860

While BenefitsExchange has grown at a rapid rate, Benefit Ltd. has significantly lagged its peers in share price performance over the last four years. Currently, the market values Benefit Ltd. at an enterprise value of ZAR1,437 million, or sales and EBITDA (last 12-month) multiples of 3 and 19, respectively.

Recently, an activist investor announced an 8% position in Benefit Ltd. equity and, in a public statement, expressed an interest in working with the company's management and board to improve stakeholder value. At the market close today, the company announced the following information in a press release.

Benefit Ltd. (Benefit) announced that its board of directors has initiated a comprehensive review of strategic alternatives to maximize stakeholder value. The board has formed a Strategic Review Committee, which is chaired by the independent director and includes Benefit's CEO.

"The board is committed to maximizing value and has initiated a comprehensive review of strategic alternatives, including selling or spinning off components of business, and a review of our strategic plans," said the independent director. "Benefit's management team and board have a strong track record of value creation."

No assurances can be given regarding the outcome or timing of the review process. Benefit does not intend to make any further public comment regarding the review until it has been completed or the company determines that disclosure is required or beneficial.

You believe there are two actions that management might take in its strategic review:

A. Sell the Consulting segment.

B. Spin off the Consulting segment (which would split the Consulting and BenefitsExchange businesses into separate companies).

Data on relative valuation for both the Consulting and BenefitsExchange segments are shown in Exhibit 40–Exhibit 42.

Exhibit 40: Consulting Segment, Comparable Company Data

Comparable company	Market cap	Cash	Debt	EBITDA (LTM)
Comparable A	1,459	13	146	159
Comparable B	2,477	461	220	319
Comparable C	788	89	92	66
Comparable D	1,402	340	348	235
Comparable E	2,770	241	113	330
Comparable F	2,934	440	498	299

Exhibit 41: Consulting Segment, Comparable Transaction Data

Comparable transaction	Cash paid	Value of stock issued	Net debt (cash) assumed	Target EBITDA (LTM)
Comparable 1	791	0	118	101
Comparable 2	1,174	0	434	134
Comparable 3	578	84	(35)	87
Comparable 4	1,310	378	832	180

Exhibit 42: BenefitsExchange Segment, Comparable Company Analysis

Comparable company	EV/sales (LTM)	Sales growth rate (LTM)
Comparable A	20	55%
Comparable B	12	18%
Comparable C	11	22%
Comparable D	6	8%
Comparable E	15	35%

1. Based on Benefit Ltd.'s current valuation and that of its median peers, evaluate whether a conglomerate discount is present. Assume that corporate/unallocated costs are allocated to the Consulting segment.

   Solution

   Benefit Ltd.'s current enterprise value is ZAR1,437 million. To assess the conglomerate discount, we compare this valuation to a sum-of-the-parts valuation of its segments using comparable company analysis.
   Comparable company analysis for the Consulting segment, shown in Exhibit 43, indicates that the median peer trades at an enterprise value-to-EBITDA multiple of 9.

Exhibit 43: Consulting Segment, Comparable Company Analysis

Comparable company	Market cap	Cash	Debt	EBITDA (LTM)	Enterprise value	EV/EBITDA
Comparable A	1,459	13	146	159	1,592	10
Comparable B	2,477	461	220	319	2,236	7
Comparable C	788	89	92	66	791	12
Comparable D	1,402	340	348	235	1,410	6
Comparable E	2,770	241	113	330	2,642	8
Comparable F	2,934	440	498	299	2,992	10
					Median	9

Comparable company analysis for the BenefitsExchange segment, shown in Exhibit 44, indicates that the median peer trades at an enterprise value-to-sales multiple of 12.

Exhibit 44: BenefitsExchange Segment, Comparable Company Analysis

Comparable company	EV/sales (LTM)
Comparable A	20
Comparable B	12
Comparable C	11
Comparable D	6

Comparable company	EV/sales (LTM)
Comparable E	15
Median	12

Applying these peer valuation multiples to Benefit Ltd.'s segment EBITDA, less corporate costs, results in an enterprise value of ZAR1,621 million and an implied conglomerate discount of ZAR184 million, as shown in Exhibit 45.

Exhibit 45: Benefit Ltd. Sum-of-the-Parts Valuation I

Consulting segment EBITDA	84
Corporate/unallocated cost	(4)
Consulting segment EBITDA	80
Peer median EV/EBITDA multiple	9
Enterprise value	721
BenefitsExchange segment sales	75
Peer median EV/S multiple	12
Enterprise value	900
Total est. enterprise value	1,621
Current trading EV	1,437
Conglomerate discount	184

2. The market's valuations of BenefitsExchange's peers seem to be sensitive to companies' sales growth rates. If the valuation multiple of the company with the closest sales growth rate to BenefitsExchange is used in the analysis from Question 1, what is the estimated conglomerate discount?

Solution

The BenefitsExchange sales growth rate for the last 12 months was (75 – 55)/55 = 36.4%. The comparable company with the closest growth rate is Comparable E, which grew by 35% and trades at an enterprise value-to-sales multiple of 15. If this multiple is used in the sum-of-the-parts valuation of Benefit Ltd., the estimated conglomerate discount will increase from ZAR184 million to ZAR409 million, as shown in Exhibit 46.

Exhibit 46: Benefit Ltd. Sum-of-the-Parts Valuation II

Consulting segment EBITDA	84
Corporate/unallocated cost	(4)
Consulting segment EBITDA	80
Peer median EV/EBITDA multiple	9
Enterprise value	721
BenefitsExchange segment sales	75
EV/S multiple	15
Enterprise value	1,125
Total est. enterprise value	1,846

Current trading EV	1,437
Conglomerate discount	409

3. Benefit Ltd. receives only one bid from a competitor consulting company for its Consulting segment, for total consideration of ZAR800 million.

   a. Compare the bid to comparable transactions. Ignore corporate/unallocated costs.

   b. Compare the bid to the implied valuation of the Consulting segment in the current market value of Benefit Ltd., using the valuation of BenefitsExchange from Question 2.

   Solution

   a. This bid values the Consulting segment at an EV/EBITDA of approximately 10, while the median and average comparable stands at 11 (see Exhibit 47). Thus, the bid moderately undervalues the Consulting segment from this perspective.

Exhibit 47: Consulting Segment, Comparable Transaction Analysis

	Cash paid	Value of stock issued	Net debt (cash) assumed	Target EBITDA (LTM)	EV/EBITDA
Comparable 1	791	0	118	101	9
Comparable 2	1,174	0	434	134	12
Comparable 3	578	84	(35)	87	7
Comparable 4	1,310	378	832	180	14
				Median	11
				Mean	11
Consulting segment bid	800			84	10

   b. If the enterprise value of BenefitsExchange is assumed to be ZAR1,125 million and Benefit Ltd. currently trades at an enterprise value of ZAR1,437 million, then the implied valuation of the Consulting segment is ZAR312 million (see Exhibit 48). The bid of ZAR800 million values the segment substantially higher (488 million).

Exhibit 48: Consulting Segment Bid vs. Current Implied Segment Valuation

Current Benefit Ltd. EV	1,437
BenefitsExchange segment sales	75
EV/S multiple	15
Est. enterprise value	1,125
Implied value of Consulting segment	312

Consulting segment bid	800
Premium to implied value	488

4. Assume Benefit Ltd. sells the Consulting segment for ZAR800 million in cash, transferring no cash or debt to the buyer, and reduces annualized corporate/unallocated operating costs by ZAR1 million and D&A expense by ZAR12 million. Additionally, assume Benefit Ltd., immediately upon receiving the proceeds, executes an accelerated share repurchase (ASR) for ZAR800 million, repurchasing 200 million shares.

   Estimate the pro forma income statement for Benefit Ltd. for these transactions, using the LTM financial data provided. Assume a 0% effective tax rate.

   Solution

   As shown in Exhibit 49, the sale of the Consulting segment is dilutive to EPS, though the dilution is offset modestly by the using of the proceeds towards share repurchases.

Exhibit 49: Pro Forma Benefit Ltd. Income Statement

	LTM
BenefitsExchange EBITDA	(5)
Corporate unallocated costs	(4)
Effect of Consulting disposal	1
D&A	(20)
Effect of Consulting disposal	12
Pro forma EBIT	(16)
Other expense (income)	0
Interest expense	9
Income taxes	0
Pro forma net income	(25)
Shares outstanding	1,454
Effect of ASR	(200)
Pro forma shares outstanding	1,254
Pro forma diluted EPS (cents)	(1.99)

5. If a spin off of the Consulting segment were to be valued at an EV/EBITDA multiple of 13, discuss whether Benefit Ltd. should sell the Consulting segment for ZAR800 million or spin it off?

   Solution

   If a spin off were to be valued at an EV/EBITDA multiple of 13, Benefit Ltd. should spin off the segment rather than sell it because the sale price of ZAR800 million values the company at 10× EV/EBITDA, or 3× lower. However, an advantage of a sale is that the valuation is definitive. If the spin off is valued lower or there is a capital market correction, then the sale may be a better option.

7 EVALUATING RESTRUCTURING ACTIONS

☐ evaluate cost and balance sheet restructurings

Restructurings are challenging on many fronts, and so they are often prompted or forced on a company by external circumstances. The next example illustrates a cost restructuring that is prompted by two related external circumstances: (1) a rejected acquisition offer and (2) pressure from shareholders in response to that rejection. Example 14 also shows how there are multiple restructuring actions that can achieve the same objective: increased shareholder value.

EXAMPLE 14

Cyrene SARL Cost Restructuring

Cyrene SARL, a fictional European consumer goods company, received an unsolicited acquisition offer in 20X2 from a larger competitor that has a reputation for aggressive cost cutting. The offer valued Cyrene at a 20% premium, and Cyrene's share price appreciated 18% on the news. However, Cyrene's management and board flatly rejected the offer, releasing the following statement by press release: "This offer fundamentally undervalues Cyrene. We rejected the proposal because we see no merit for Cyrene's stakeholders. We do not see the basis for any further discussion." The competitor withdrew its bid, and Cyrene's share price fell by 3%.

Over the week following the bid and rejection, Cyrene management and board members held conversations with its large shareholders. Several large shareholders remarked that "for as long as you don't take actions to increase shareholder value, you are vulnerable to an acquirer who will."

Two weeks after the bid, Cyrene SARL announced the following by press release: "We are conducting a comprehensive review of our cost structure to accelerate delivery of shareholder value. Recent events have highlighted the need to quickly capture the value we see in the company. We expect the review to be completed in five weeks, after which time we will communicate further."

Summary financial data for the last 12 months for Cyrene and five other European consumer goods companies, including Competitor A, which made the initial offer to acquire Cyrene, are shown in Exhibit 50 (also in the Example 14 worksheet in the the downloadable Microsoft Excel workbook).

Exhibit 50: Summary Financial Data, European Consumer Goods (LTM; EUR millions)

	Total Assets	Revenues	EBIT	Revenue Growth Rate*	Debt as % of Assets
Competitor A	236,648	56,444	16,933	1.50%	44%
Competitor B	86,381	35,410	8,782	–2.00%	45%
Competitor C	127,940	91,187	15,867	1.00%	29%
Competitor D	101,450	25,896	5,257	0.00%	29%
Competitor E	66,477	27,808	5,228	2.50%	29%

	Total Assets	Revenues	EBIT	Revenue Growth Rate*	Debt as % of Assets
Cyrene SARL	23,738	18,990	2,659	4.00%	20%

**CAGR for last three years.*

1. Explain Cyrene's motivations for conducting a review of its cost structure. What did the large shareholders mean by their remark?

   Solution

   The large shareholders meant that another company could acquire Cyrene and cut costs (equivalently, realize operating cost synergies) and earn an attractive rate of return on the acquisition. By having below-average profitability, Cyrene is a potentially inexpensive target, after synergies, for an acquirer. By improving its profitability on its own now, as a standalone business, it can improve shareholder value and fend off an acquirer.

2. If Cyrene were to restructure to reach its peer median EBIT margin, calculate how much in annual operating expenses, in euros and as a percentage of its TTM operating expenses, would have to be eliminated.

   Solution

   Based on the data in Exhibit 50, the peer median EBIT margin is 20%. In the last 12 months, Cyrene reported sales and EBIT of EUR18,990 million and EUR2,659 million, respectively, implying operating expenses of EUR16,331 million. To reach the peer median EBIT margin of 20%, Cyrene would have to reduce its operating expenses by EUR1,139 million, or 7%.

3. Past cost restructuring programs by consumer goods companies have taken four years, on average, to achieve target profitability. Assuming the following, estimate Cyrene's EBIT and EBIT margin next year:

   a. Revenues grow by 3% annually.

   b. Cyrene incurs one-time costs associated with the restructuring of EUR1,250 million.

   c. EBIT margin increases towards the peer median, excluding the impact of one-time restructuring costs, in an even annual pace over four years.

   Solution

   Exhibit 51 shows the estimation of Cyrene's pro forma profitability for the restructuring plan, as outlined. If Cyrene's EBIT margin is to increase evenly over four years towards 20%, it will increase by (20% – 14%)/4 = 6%/4 = 1.5% each year. Revenue growth and margin expansion are more than offset in the next 12 months by the one-time restructuring costs.

Exhibit 51: Cyrene Pro Forma Profitability, NTM (EUR millions)

	LTM	NTM
Revenues	18,990	19,560
EBIT ex. restructuring costs	2,659	3,032
Margin	14.0%	15.5%
Restructuring costs	—	1,250
Pro forma EBIT	—	1,782
Margin	—	9.1%

4. Explain two risks for Cyrene for pursuing a cost restructuring like the one modeled in Question 3.

Solution

The first risk is decelerating revenue growth. Over the last three years, Cyrene has grown materially faster than its five competitors. A major cost reduction may result in cutting spending responsible for that growth, which may erase any value creation associated with the restructuring.
A second risk is political. Cost restructurings typically result in layoffs and the closures of facilities, which may result in pressure from government officials and the public. Cyrene is a consumer-facing company and can lose business or be the target of regulatory pressure that preempts the cost restructuring or results in less value creation than anticipated.

5. Cyrene operates and reports results for three segments: Household Goods, Beauty & Personal Care, and Food. Summary segment financial data for the last 12 months are presented in Exhibit 52. Your colleague has advocated that as an alternative to a cost restructuring, Cyrene could sell or spin off its Household Goods segment to improve profitability. Evaluate your colleague's proposal, and identify other information you need to fully evaluate the proposal.

Exhibit 52: Cyrene Segment Results, LTM (EUR millions)

	Revenues	EBIT	Revenue Growth Rate*
Household Goods	5,507	496	7%
Beauty & Personal Care	8,166	1,960	3%
Food	5,317	583	2%
Corporate/unallocated	—	(380)	
Total	18,990	2,659	4.00%
Margin		14.0%	

Solution

As Exhibit 53 shows, selling or spinning off the Household Goods segment would result in a pro forma EBIT and EBIT margin of EUR2,163 million and 16%, respectively. While the margin is 2 percentage points higher, total EBIT is 19% lower in this scenario.

Exhibit 53: Cyrene Pro Forma Segment Results, LTM (EUR millions)

	Revenues	EBIT	Revenue Growth Rate*
Beauty & Personal Care	8,166	1,960	3%
Food	5,317	583	2%
Corporate/unallocated	—	(380)	
Total	13,483	2,163	
Margin		16%	

To fully evaluate a cost restructuring versus a sale or spin off of the Household Goods segment, several additional analyses are necessary, including the following:

- Estimated valuation of the Household Goods segment in a sale or spin off versus the value it has to the current Cyrene enterprise value
- Benefits or costs to the remaining Cyrene business segments as a result of a separation
- Amount, if any, of corporate/unallocated costs that could be reduced in the event of a sale or a spin off
- Additional details of the cost restructuring to compare to a sale or a spin off (it may be the case that both a cost restructuring and sale or spin off could be pursued)

Most corporate restructurings aim for strategic focus and operational simplification. Often corporate issuers find themselves owning business units that would be better served by a different ownership or operating model or governance structure. Ideally, restructurings work towards that objective.

This is true not only for businesses within a corporate issuer but also for the assets that underlie them. A common balance sheet restructuring is the sale and immediate leasing of real estate owned by issuers for which real estate is not their core business to a company that does focus on real estate investments. Example 15 demonstrates this situation with a retailer that owns valuable commercial real estate: its distribution centers.

EXAMPLE 15

Kosala Corp. Balance Sheet Restructuring

Kosala Corp. is a global omnichannel retailer with physical stores and e-commerce operations on its own and on third-party websites. While it leases most of its retail stores and its headquarters, Kosala owns the real estate (land and buildings) associated with several distribution centers the company built many years ago and expanded over time. Because e-commerce has continued to grow at a rapid rate and land use is highly regulated, distribution centers and associated real estate are valued at attractive cap rates. (The cap rate is net operating income expressed as a percentage of a property's value and is a reciprocal of a valuation multiple.)

On 1 June 20X2, Kosala Corp. made the following announcement by press release.

Kosala Corp. announced today that its board of directors approved a strategic real estate plan to pursue a separation of substantially all of its distribution centers and related real estate assets. The separation would be achieved through a series of sale-leaseback transactions with real estate investment companies that specialize in distribution center properties.

The company's board reached this decision after an extensive real estate evaluation process, along with the support of its legal and financial advisers. This evaluation included asset suitability screening, market rent analysis on a property-by-property basis, and prospective portfolio quality and diversification analysis.

"This strategic real estate plan is the result of a comprehensive review of alternatives to best take advantage of our real estate portfolio," said the chairman and CEO of Kosala. "We appreciate the valuation differential between retailers and real estate. Importantly, we expect this real estate plan to create minimal operational distraction."

Under the plan, Kosala will sell some of its distribution centers and related real estate and lease them for 15-year terms with the option to extend the term. The company expects to receive cash proceeds of approximately CHF425 million, which will be used to retire approximately CHF215 million of debt and the remaining proceeds to repurchase 10 million common shares.

Annual rent expense for the leased assets will total CHF19 million. Kosala will continue to be responsible for maintenance, property taxes, and utilities and will generally be able to make modifications to the properties as business needs arise. The transaction values the assets at an average capitalization rate of 4.5%.

The company believes the pro forma capital structure following the transaction will enable it to receive an investment-grade credit rating, which will offer more attractive financing terms from its current speculative-grade rating. However, the company's credit rating is the responsibility of credit rating agencies, and no assurances can be made as to any changes.

Kosala expects the transaction, including the retirement of debt and the share repurchase, to be completed by the end of 20X2. Additional financial details are as follows:

- Expect to recognize a gain on asset sales of CHF200 million, to be amortized over 15 years.
- Incremental occupancy expense is CHF19 million per year.
- Depreciation expense savings are CHF30 million per year.
- Interest savings from the retirement of debt are CHF15 million per year.
- Because management cannot make any assurance regarding a change in the company's credit rating, further interest savings from a decrease in the company's cost of debt cannot be quantified at this time.
- Expect to recognize operating lease right-of-use asset and lease liabilities of CHF198 million.

1. Explain Kosala's motivation for this action.

Solution

Kosala's motivations are two-fold: to unlock the value in its real estate assets, a non-core business for the company with attractive valuations, and to improve its balance sheet by retiring debt and improving its credit rating, which will likely decrease its costs of capital.

2. The 25th, 50th, and 75th percentile cap rates for transactions for similarly situated properties and similar lease terms in the last five years were 3.0%, 5.5%, and 8.0%, respectively. Based on these figures, evaluate the valuation on a preliminary basis and identify two characteristics that may influence the cap rate for these transactions.

   Solution

   For leases in which the tenant bears operating costs and taxes, net operating income is generally equal to rent. Because the cap rate is a reciprocal of a valuation multiple, a lower cap rate implies a higher valuation and vice versa. For a seller (and future tenant), such as Kosala, a lower cap rate is desirable. The 4.5% cap rate in this transaction compares favorably to the descriptive statistics provided, because it is 100 bps below the median. Two characteristics that may influence the cap rate for these transactions are the location of the property and its physical condition. Distribution centers near metropolitan centers are the most valuable, and one in good condition means that significant capital expenditures will not be required in the short run.

3. Based on the information provided and Exhibit 54, estimate Kosala's pro forma debt-to-EBITDA and interest coverage ratios for the announced transactions, assuming an effective tax rate of 25%.

Exhibit 54: Kosala Corp. Summary Financial Data (CHF millions)

	LTM (pre-transaction)
Net sales	5,323
Cost of sales	3,309
Gross margin	2,014
SG&A expenses	1,823
D&A expense	67
Operating profit	124
Interest expense	43
Income taxes	20
Net income	61
Diluted shares outstanding	97
Diluted EPS	0.63
Gross debt	615

Based on the information provided, Kosala's pro forma gross debt to EBITDA will decrease from 3.2 to 2.3 as a result of the transactions (see Exhibit 55; also in the Example 15 worksheet in the the downloadable Microsoft Excel workbook). Note that while depreciation expense decreases, amortization expense increases from the annual amortization of the gain on sale of the assets. Interest coverage (EBIT to interest expense) increases from 2.9 to 4.3.

Exhibit 55: Kosala Corp. Pro Forma Debt-to-EBITDA Analysis (CHF millions)

	LTM (pre-transaction)	Transaction	LTM (pro forma)
Net sales	5,323		5,323
Cost of sales	3,309		3,309
Gross margin	2,014		2,014
SG&A expenses	1,823	19	1,842
D&A expense	67	(17)	50
Operating profit	124		122
Interest expense	43	(15)	28
Income taxes	20		23
Net income	61		70
Diluted shares outstanding	97	(10)	87
Diluted EPS	0.63		0.81
Gross debt	615	(215)	400
Debt to EBITDA	3.2		2.3
EBIT to interest	2.9		4.3

4. Assuming credit ratings are primarily determined by interest coverage and debt-to-EBITDA ratios, estimate pro forma interest expense for Kosala using Exhibit 56. Assume that the spot Treasury rate at a similar tenor to Kosala's remaining indebtedness is 125 bps.

Exhibit 56: Corporate Credit Ratings and Spreads to Fundamentals

	AAA/AA	A	BBB	BB	B
Debt to EBITDA	0–1.0	1.0–1.5	1.6–2.3	2.4–3.5	3.6–4.5
EBIT interest coverage	>12	11.0–8.0	7.9–4.0	3.5–1.6	1.5–0.5
Average spread over Treasury	125	232	450	575	731

Pro forma for the transactions, Kosala's estimated debt-to-EBITDA and interest coverage ratios are 2.3× and 4.3×, respectively. This puts Kosala in the BBB credit rating range, which has an average spread over Treasuries of 450 bps. Given the Treasury rate of 125 bps, the pro forma interest rate is 575 bps. On gross debt of CHF400 million, pro forma interest expense is CHF23 million, which is CHF5 million less than prior to its credit rating upgrade and reduction in cost of debt.

SUMMARY

- Corporate issuers seek to alter their destiny, as described by the corporate life cycle, by taking actions known as restructurings.
- Restructurings include investment actions that increase the size and scope of an issuer's business, divestment actions that decrease size or scope, and restructuring actions that do not affect scope but improve performance.
- Investment actions include equity investments, joint ventures, and acquisitions. Investment actions are often made by issuers seeking growth, synergies, or undervalued targets.
- Divestment actions include sales and spin offs and are made by issuers seeking to increase growth or profitability or reduce risk by shedding certain divisions and assets.
- Restructuring actions, including cost cutting, balance sheet restructurings, and reorganizations, do not change the size or scope of issuers but are aimed at improving returns on capital to historical or peer levels.
- The evaluation of a corporate restructuring is composed of four phases: initial evaluation, preliminary evaluation, modeling, and updating the investment thesis. The entire evaluation is generally done only for material restructurings.
- The initial evaluation of a corporate restructuring answers the following questions: What is happening? When is it happening? Is it material? And why is it happening?
- Materiality is defined by both size and fit. One rule of thumb for size is that large actions are those that are greater than 10% of an issuer's enterprise value (e.g., for an acquisition, consideration in excess of 10% of the acquirer's pre-announcement enterprise value). Fit refers to the alignment between the action and an analyst's expectations for the issuer.
- Three common valuation methods for companies involved in corporate restructurings, during the preliminary valuation phase of the evaluation, are comparable company, comparable transaction, and premium paid analysis.
- Corporate restructurings must be modeled on the financial statements based on the situational specifics. Estimated financial statements that include the effect of a restructuring are known as pro forma financial statements.
- The weighted average cost of capital for an issuer is determined by the weights of different capital types and the constituent costs of capital. The costs of capital are influenced by both bottom-up and top-down drivers. Bottom-up drivers include stability, profitability, leverage, and asset specificity. Corporate restructurings affect the cost of capital by affecting these drivers.

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PRACTICE PROBLEMS

The following information relates to questions 1-5

Jane Chang is an analyst at Alpha Fund covering the real estate and energy sectors. She and her colleague are analyzing two companies that are currently held by the fund.

The first company is Jupiter Corp., a publicly traded, national retail grocery store chain that has 2,800 physical stores. Jupiter leases most of its grocery stores and all five of its office locations that help the company achieve its core business of operating 50,000 square foot stores in all markets of the United States. Jupiter also owns the real estate (land and building) associated with 100 physical store locations. Jupiter recently announced that its board of directors approved a strategic real estate plan to pursue a separation of all its owned assets. The company currently has a speculative-grade credit rating.

The separation would be achieved through a series of sale-leaseback transactions with real estate investment trusts (REITs) that specialize in owning retail properties. Under the plan, Jupiter will sell its 100 owned grocery stores and lease them for 15-year terms with a combined annual rent expense of USD40 million. Jupiter expects to receive cash proceeds of approximately USD800 million from the property sales, which will be used to retire approximately USD600 million of debt and repurchase 4 million common shares.

Jupiter believes the pro forma capital structure following the transactions will enable it to receive an investment-grade credit rating. The sale-leaseback transactions value the 100 assets at an average capitalization rate of 5.50%. Based on Chang's colleague's research, the 25th, 50th, and 75th percentile cap rates for sale transactions for similarly situated properties and similar lease terms in the last three years were 5.00%, 5.50%, and 6.00%, respectively.

The second company is Saturn Corp., a publicly traded US energy company. Chang has been asked to assess the valuation of a potential spin off for this company. Saturn operates and reports three segments: Upstream, Midstream, and Downstream. In the last 12 months, the company reported the financial results shown in Exhibit 1.

Exhibit 1

Segment	EBITDA (USD millions)
Upstream	14,400
Midstream	5,760
Downstream	3,840
Consolidated	**24,000**

Saturn is currently trading at an enterprise value of USD408,000 million, or an EV/EBITDA multiple of 17. A spin off of the Downstream segment has long been rumored because it has been under-invested in by the current management team, resulting in slower revenue growth than its peers. Chang finds that the median Upstream, Midstream, and Downstream peers are trading at enterprise

value-to-EBITDA multiples of 19, 17, and 13, respectively.

During an internal discussion, Chang's colleague makes the following three statements about the comparable company analysis method:

Statement 1: The method is not sensitive to market mispricing.

Statement 2: The estimates of value are derived directly from the market.

Statement 3: The method provides a reasonable approximation of a target company's value relative to similar transactions in the market.

1. Jupiter's strategic real estate plan would be best characterized as a:

   A. reorganization.

   B. cost restructuring.

   C. balance sheet restructuring.

2. Which of the following statements about Jupiter's motivations for the strategic real estate plan is incorrect?

   A. The transactions will enable Jupiter to sell a non-core business.

   B. The transactions will allow Jupiter to unlock the value of its real estate assets.

   C. The expected change in Jupiter's credit rating after the transactions will increase the firm's costs of capital.

3. Which of the following statements *best* describes Jupiter's average capitalization rate for the sale-leaseback transactions? Jupiter's average capitalization rate:

   A. is supported by the comparable transactions.

   B. compares favorably to the comparable transactions.

   C. compares unfavorably to the comparable transactions.

4. Based on Exhibit 1 and the peer median EV/EBITDA multiples, Saturn's estimated enterprise value is *closest* to:

   A. USD392,000 million.

   B. USD408,000 million.

   C. USD421,440 million.

5. Which of Chang's colleague's three statements is correct?

   A. Statement 1

   B. Statement 2

   C. Statement 3

The following information relates to questions 6-10

Elaine Lee is an analyst at an investment bank covering the energy sector. She and her junior analyst are analyzing Stratton Oil Corporation.

Stratton Oil Corporation is a publicly traded, US-based energy company that just announced its acquisition of Midwest Oil Corporation, a smaller US-based energy company. Stratton will pay USD55 in cash and 2.25 Stratton shares for each Midwest share, for a total consideration of USD40 billion based on share prices just prior to the announcement. Stratton's current trading enterprise value just prior to the announcement was USD170 billion. Lee concludes that the acquisition does not signal a change in strategy or focus for Stratton.

Stratton expects to realize annual recurring cost synergies of USD350 million (pre-tax), primarily from efficiencies in oil exploration and production activities and savings in corporate costs. The achievement of the full USD350 million in synergies is expected by the end of the third year after the acquisition closes. Synergies are realized in the amounts of USD117 million, USD233 million, and USD350 million in Years 1–3, respectively, and cash costs of USD175 million, USD280 million, and USD395 million are incurred in Years 1–3, respectively.

Expectations for revenues and total operating expenses for Stratton and Midwest for the next three years prior to the acquisition announcement are shown in Exhibit 1.

Exhibit 1: Stratton and Midwest Year 1–3 Figures, Prior to Acquisition (USD millions)

Stratton	Year 1	Year 2	Year 3
Revenues	21,325	22,391	23,511
Operating expenses	16,525	17,351	18,219
Midwest			
Revenues	5,350	5,618	5,898
Operating expenses	3,050	3,203	3,363

Lee's junior analyst makes the following comment during a conversation with Lee:

The acquisition is considered immaterial in the initial evaluation step for Stratton because it does not signal a change in strategy or focus.

Stratton's offer valued Midwest at an enterprise value of USD40.6 billion, including USD4.3 billion of existing Midwest debt. To finance the consideration of USD55 in cash and 2.25 Stratton shares for each Midwest share, Stratton will issue 104 million new shares and raise approximately USD26 billion in new debt and fund the remainder with cash on hand. Following the close, Stratton expects its outstanding debt will be approximately USD62 billion. Prior to the acquisition, Stratton has 1.096 billion shares outstanding trading at USD125 per share. Lee wants to determine how much the weights of debt and equity in Stratton's capital structure will change assuming a constant share price and that the book value of debt equals its market value.

During an internal meeting, Lee asks if Stratton could have achieved its same goals by undertaking an equity investment or joint venture. In response, Lee's junior analyst makes the following three statements.

Statement 1: Acquisitions require substantially greater capital investments than equity investments.

Statement 2: Acquisitions and equity investments are similar in that they both allow the acquirer to gain control of the target.

Statement 3: Relative to joint ventures, equity investments provide more equal governance representation and require larger investments.

Lee conducted a sum-of-the-parts valuation of Stratton's three segments and calculated an estimated enterprise value of USD187 billion just prior to the announcement.

6. Based on Exhibit 1, the forecasted operating income in Year 3 for the combined Stratton and Midwest is *closest* to:

   A. USD7,432.

   B. USD7,782.

   C. USD8,177.

7. Lee's junior analyst's comment about materiality is:

   A. correct.

   B. incorrect because the acquisition is considered a small acquisition.

   C. incorrect because the acquisition represents more than 10% of Stratton's enterprise value prior to the transaction.

8. The weight of equity in Stratton's capital structure as a result of the acquisition of Midwest assuming Lee's two assumptions is closest to:

   A. 29%.

   B. 71%.

   C. 81%.

9. Which of Lee's junior analyst's three statements is correct?

   A. Statement 1

   B. Statement 2

   C. Statement 3

10. Stratton's estimated conglomerate discount just prior to the announcement is:

    A. –USD17 billion.

    B. USD0.

    C. USD17 billion.

SOLUTIONS

1. C is correct. Jupiter is undertaking a sale-leaseback transaction, which is a type of balance sheet restructuring. Jupiter would receive cash from the property sales and recognize a liability equal to the present value of future lease payments. A is incorrect because a reorganization is a court-supervised restructuring process available in most jurisdictions for companies facing insolvency from burdensome debt levels and, sometimes, as a strategic measure to renegotiate contracts with unfavorable terms. B is incorrect because a cost restructuring refers to actions whose goal is to reduce costs by improving operational efficiency and profitability, often to bring margins to a historical level or to those of comparable industry peers.

2. C is correct. The sale leasebacks will improve Jupiter's balance sheet by retiring debt and likely improving its credit rating, which will decrease (not increase) its costs of capital. A is incorrect because real estate ownership represents a non-core business for Jupiter. Its core business is operating 50,000 square foot stores in all markets of the United States. B is incorrect because the sale leasebacks will allow Jupiter to unlock the value in its real estate assets. Jupiter would receive cash from the property sales and recognize a liability equal to the present value of future lease payments.

3. A is correct. Jupiter's average capitalization rate for the sale-leaseback transactions is 5.50%, which is supported by the median of the 25th, 50th, and 75th percentile cap rates for sale transactions for similarly situated properties with similar lease terms in the last three years (5.00%, 5.50%, and 6.00%). B and C are incorrect because Jupiter's average capitalization rate for the sale-leaseback transactions is 5.50%, which is supported by the median of the 25th, 50th, and 75th percentile cap rates for sale transactions for similarly situated properties with similar lease terms in the last three years (5.00%, 5.50%, and 6.00%).

4. C is correct. USD421,440 million is calculated as follows:

   Upstream: USD14,400 × 19 = USD273,600.

   Midstream: USD5,760 × 17 = USD97,920.

   Downstream: USD3,840 × 13 = USD49,920.

   Consolidated: USD421,440 million

   A is incorrect because USD392,000 million is incorrectly calculated by using the average of the peer segment multiples [(19 + 17 + 13)/3 = 16.33] to estimate the consolidated enterprise value.

   Upstream: USD14,400 × 16.33 = USD234,720.

   Midstream: USD5,760 × 16.33 = USD93.888.

   Downstream: USD3,840 × 16.33 = USD62,592.

   Consolidated: USD392,000 million

   B is incorrect because USD408,000 million is Saturn's current enterprise value, not the estimated enterprise value based on median peer multiples for all three segments.

5. B is correct. An advantage of the comparable company analysis method is that estimates of value are derived directly from the market. This approach is unlike the discounted cash flow method, in which the value is determined based on many assumptions and estimates. A is incorrect because the comparable company analysis method is sensitive to market mispricing. As an example, suppose that all the comparable companies are currently overvalued by the market. A valuation relative to those companies may suggest a value that is too high in the sense that values would be revised downward upon a correction. C is incorrect because the comparable company analysis method provides a reasonable approximation of a target company's value relative to similar companies (not transactions) in the market. It assumes that "like" assets should be valued on a similar basis in the market.

6. B is correct. The forecasted operating income in Year 3 is calculated as follows:

Combined Stratton and Midwest Oil: Year 1–3 Figures (USD millions)

Revenues	Year 1	Year 2	Year 3
Stratton	21,325	22,391	23,511
Add: Midwest revenues	5,350	5,618	5,898
Combined revenues	**26,675**	**28,009**	**29,409**
Operating expenses			
Stratton	16,525	17,351	18,219
Add: Midwest	3,050	3,203	3,363
Subtract: synergies	(117)	(233)	(350)
Add: one-time costs	175	280	395
Combined operating expenses	**19,633**	**20,601**	**21,627**
Operating income (Rev-OpEx)	**7,042**	**7,408**	**7,782**

A is incorrect because it incorrectly excludes Year 3 synergies of USD350 million. C is incorrect because it incorrectly excludes Year 3 one-time costs of USD395 million.

7. C is correct. Materiality can be defined along two dimensions: size and fit. Although the acquisition does not signal a change in strategy or focus for Stratton, the transaction is considered large and material because it exceeds 10% of Stratton's enterprise value prior to the transaction. The total consideration is USD40 billion, based on share prices just prior to the announcement; thus, it represents 23.5% of Stratton's enterprise value just prior to the announcement of USD170 billion. A is incorrect because materiality can be defined along two dimensions: size and fit. Although the acquisition does not signal a change in strategy or focus for Stratton, the transaction is considered large and material because it exceeds 10% of Stratton's enterprise value prior to the transaction. B is incorrect because the transaction is considered large and material because it exceeds 10% of Stratton's enterprise value prior to the transaction.

8. B is correct. Following the close of the acquisition, Stratton expects its outstanding debt to total USD62 billion, after assuming USD4.3 billion in existing Mid-

west debt and issuing USD26 billion. Therefore, prior to the acquisition, Stratton had approximately (62 – 4.3 – 26 =) USD31.7 billion in debt and (1.096 billion shares outstanding × USD125 per share =) USD137.0 billion in equity, resulting in a mix of debt and equity of 19% and 81%, respectively. After the acquisition, Stratton will have USD62 billion in debt and (1.096 billion + 104 million =) 1.2 billion shares outstanding, which, priced at USD125 per share, results in USD150 billion in equity, resulting in a mix of debt and equity of 29% and 71%, respectively. The change in capital structure is summarized below.

Stratton's Capital Structure before and after Acquisition of Midwest

Stratton Capital Structure	Pre-Acquisition	Post-Acquisition
Debt %	19%	29%
Equity %	81%	71%

A is incorrect because 29% represents the percentage of debt after acquisition. C is incorrect because 81% represents the percentage of equity prior to acquisition.

9. A is correct. Acquisitions require substantially greater capital investments than equity investments. Acquisitions—not equity investments—allow the acquirer to gain control of the target. Relative to equity investments, joint ventures provide more equal governance representation and require larger investments. B is incorrect because acquisitions (not equity investments) allow the acquirer to gain control of the target. C is incorrect because relative to equity investments, joint ventures provide more equal governance representation and require larger investments.

10. C is correct. The estimated conglomerate discount just prior to the announcement is calculated as follows: Total estimated enterprise value from sum-of-the-parts valuation – Current trading enterprise value = USD187 billion – USD170 billion = USD17 billion. A is incorrect because it incorrectly subtracts the estimated enterprise value from the current trading enterprise value. B is incorrect because the estimated and current trading enterprise values are not equal.