

OVERVIEW OF EQUITY SECURITIES

Ryan C. Fuhrmann, CFA
Asjeet S. Lamba, PhD, CFA

LEARNING OUTCOMES

The candidate should be able to:

- describe characteristics of types of equity securities;
- describe differences in voting rights and other ownership characteristics among different equity classes;
- distinguish between public and private equity securities;
- describe methods for investing in non-domestic equity securities;
- compare the risk and return characteristics of different types of equity securities;
- explain the role of equity securities in the financing of a company's assets;
- distinguish between the market value and book value of equity securities;
- compare a company's cost of equity, its (accounting) return on equity, and investors' required rates of return.

1. INTRODUCTION

Equity securities represent ownership claims on a company's net assets. As an asset class, equity plays a fundamental role in investment analysis and portfolio management because it represents a significant portion of many individual and institutional investment portfolios.

The study of equity securities is important for many reasons. First, the decision on how much of a client's portfolio to allocate to equities affects the risk and return characteristics of the entire portfolio. Second, different types of equity securities have different ownership claims on a company's net assets, which affect their risk and return characteristics in different ways. Finally, variations in the features of equity securities are reflected in their market prices, so it is important to understand the valuation implications of these features.

This chapter provides an overview of equity securities and their different features and establishes the background required to analyze and value equity securities in a global context. It addresses the following questions:

- What distinguishes common shares from preference shares, and what purposes do these securities serve in financing a company's operations?
- What are convertible preference shares, and why are they often used to raise equity for unseasoned or highly risky companies?
- What are private equity securities, and how do they differ from public equity securities?
- What are depository receipts and their various types, and what is the rationale for investing in them?
- What are the risk factors involved in investing in equity securities?
- How do equity securities create company value?
- What is the relationship between a company's cost of equity, its return on equity, and investors' required rate of return?

The remainder of this chapter is organized as follows. Section 2 provides an overview of global equity markets and their historical performance. Section 3 examines the different types and characteristics of equity securities, and Section 4 outlines the differences between public and private equity securities. Section 5 provides an overview of the various types of equity securities listed and traded in global markets. Section 6 discusses the risk and return characteristics of equity securities. Section 7 examines the role of equity securities in creating company value and the relationship between a company's cost of equity, its return on equity, and investors' required rate of return. The final section summarizes the chapter.

2. EQUITY SECURITIES IN GLOBAL FINANCIAL MARKETS

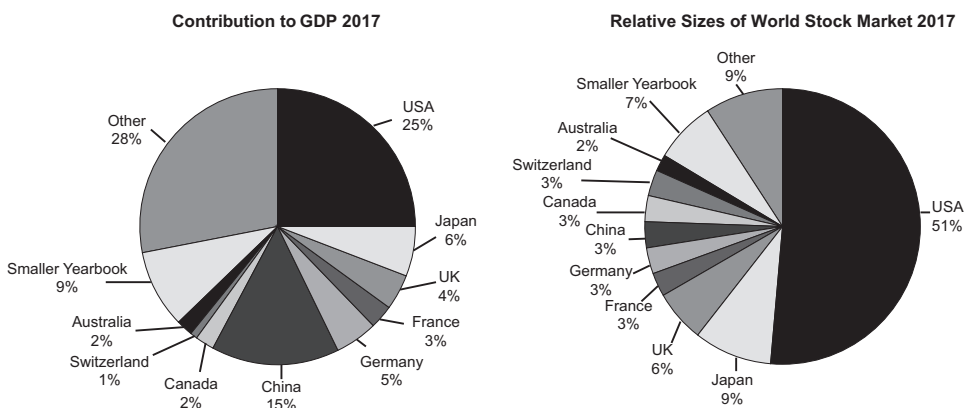
This section highlights the relative importance and performance of equity securities as an asset class. We examine the total market capitalization and trading volume of global equity markets and the prevalence of equity ownership across various geographic regions. We also examine historical returns on equities and compare them to the returns on government bonds and bills.

Exhibit 1 summarizes the contributions of selected countries and geographic regions to global gross domestic product (GDP) and global equity market capitalization. Analysts may examine the relationship between equity market capitalization and GDP as a rough indicator of whether the global equity market (or a specific country's or region's equity market) is under, over, or fairly valued, particularly compared to its long-run average.

Exhibit 1 illustrates the significant value that investors attach to publicly traded equities relative to the sum of goods and services produced globally every year. It shows the continued significance, and the potential over-representation, of US equity markets relative to their contribution to global GDP. That is, while US equity markets contribute around 51 percent to the total capitalization of global equity markets, their contribution to the global GDP is only around 25 percent. Following the stock market turmoil in 2008, however, the market capitalization to GDP ratio of the United States fell to 59 percent, which is significantly lower than its long-run average of 79 percent.

As equity markets outside the United States develop and become increasingly global, their total capitalization levels are expected to grow closer to their respective world GDP contributions. Therefore, it is important to understand and analyze equity securities from a global perspective.

EXHIBIT 1 Country and Regional Contributions to Global GDP and Equity Market Capitalization (2017)



Sources: The WorldBank Databank (2017), and Dimson, Marsh, and Staunton (2018).

Exhibit 2 lists the top 10 equity markets at the end of 2017 based on total market capitalization (in billions of US dollars), trading volume, and the number of listed companies.¹ Note that the rankings differ based on the criteria used. For example, the top three markets based on total market capitalization are the NYSE Euronext (US), NASDAQ OMX, and the Japan Exchange Group; however, the top three markets based on total US dollar trading volume are the Nasdaq OMX, NYSE Euronext (US), and the Shenzhen Stock Exchange, respectively.²

EXHIBIT 2 Equity Markets Ranked by Total Market Capitalization at the End of 2017 (Billions of US Dollars)

Rank	Name of Market	Total US Dollar Market Capitalization	Total US Dollar Trading Volume	Number of Listed Companies
1	NYSE Euronext (US)	\$22,081.4	\$16,140.1	2,286
2	NASDAQ OMX	\$10,039.4	\$33,407.1	2,949
3	Japan Exchange Group ^a	\$6,220.0	\$6,612.1	3,604
4	Shanghai Stock Exchange	\$5,084.4	\$7,589.3	1,396
5	Euronext ^b	\$4,393.0	\$1,981.6	1,255
6	Hong Kong Exchanges	\$4,350.5	\$1,958.8	2,118
7	Shenzhen Stock Exchanges	\$3,617.9	\$9,219.7	2,089

¹The market capitalization of an individual stock is computed as the share price multiplied by the number of shares outstanding. The total market capitalization of an equity market is the sum of the market capitalizations of each individual stock listed on that market. Similarly, the total trading volume of an equity market is computed by value weighting the total trading volume of each individual stock listed on that market. Total dollar trading volume is computed as the average share price multiplied by the number of shares traded.

²NASDAQ is the acronym for the National Association of Securities Dealers Automated Quotations.

Rank	Name of Market	Total US Dollar Market Capitalization	Total US Dollar Trading Volume	Number of Listed Companies
8	National Stock Exchange of India	\$2,351.5	\$1,013.3	1,897
9	BSE Limited ^c	\$2,331.6	\$183.0	5,616
10	Deutsche Börse	\$2,262.2	\$1,497.9	499

Notes:

^aJapan Exchange Group is the merged entity containing the Tokyo Stock Exchange and Osaka Securities Exchange.

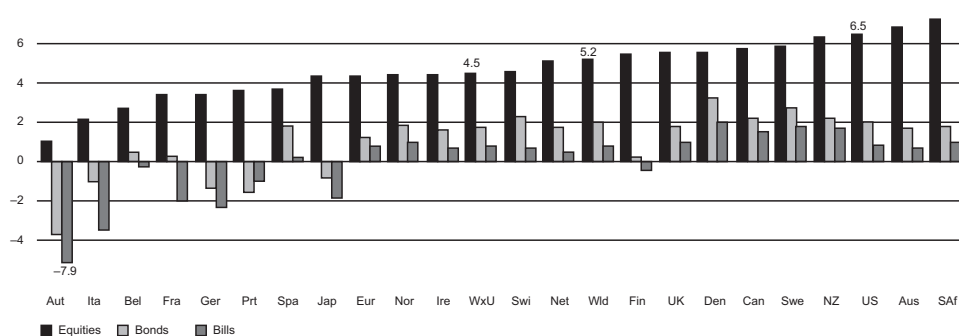
^bFrom 2001, includes Netherlands, France, England, Belgium, and Portugal.

^cBombay Stock Exchange.

Source: Adapted from the *World Federation of Exchanges 2017 Report* (see <http://www.world-exchanges.org>). Note that market capitalization by company is calculated by multiplying its stock price by the number of shares outstanding. The market's overall capitalization is the aggregate of the market capitalizations of all companies traded on that market. The number of listed companies includes both domestic and foreign companies whose shares trade on these markets.

Exhibit 3 compares the *real* (or inflation-adjusted) compounded returns on government bonds, government bills, and equity securities in 21 countries plus the world index (“Wld”), the world ex-US (“WxU”), and Europe (“Eur”) during the 118 years 1900–2017.³ In real terms, government bonds and bills have essentially kept pace with the inflation rate, earning annualized real returns of less than 2 percent in most countries.⁴ By comparison, real returns in equity markets have generally been around 3.5 percent per year in most markets—with a world average return of around 5.2 percent and a world average return excluding the United States just under 5 percent. During this period, South Africa and Australia were the best performing markets followed by the United States, New Zealand, and Sweden.

EXHIBIT 3 Real Returns on Global Equity Securities, Bonds, and Bills During 1900–2017



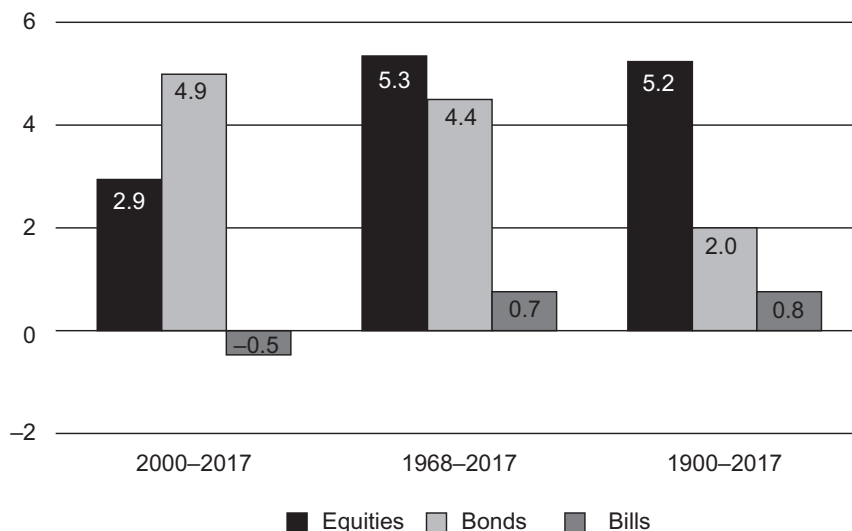
Source: Dimson, Marsh, and Staunton (2018).

Exhibit 4 shows the annualized real returns on major asset classes for the world index over 1900–2017.

³The real return for a security is approximated by taking the nominal return and subtracting the observed inflation rate in that country.

⁴The exceptions are Austria, Belgium, Finland, France, Germany, Portugal, and Italy—where the average real returns on government bonds and/or bills have been negative. In general, that performance reflects the very high inflation rates in these countries during the World War years.

EXHIBIT 4 Annualized Real Returns on Asset Classes for the World Index, 1900–2017

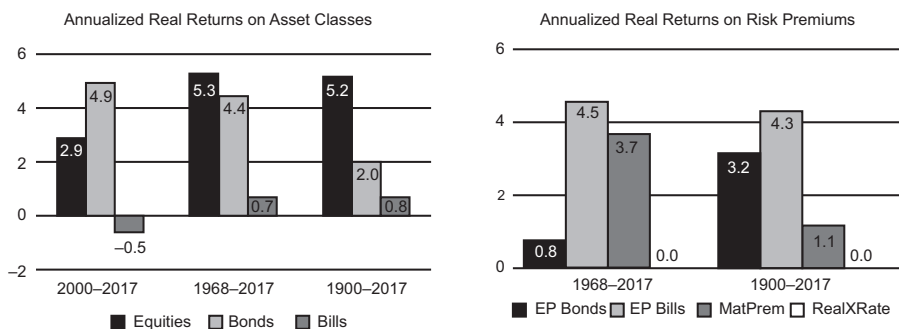


Source: Dimson, Marsh, and Staunton (2018).

The volatility in asset market returns is further highlighted in Exhibit 5, which shows the annualized risk premia for equity relative to bonds (EP Bonds), and equity relative to treasury bills (EP Bills). Maturity premium for government bond returns relative to treasury bill returns (Mat Prem) is also shown.

These observations and historical data are consistent with the concept that the return on securities is directly related to risk level. That is, equity securities have higher risk levels when compared with government bonds and bills, they earn higher rates of return to compensate investors for these higher risk levels, and they also tend to be more volatile over time.

EXHIBIT 5 Annualized Real Returns on Asset Classes and Risk Premiums for the World Index since 1900–2017



Notes: Equities are total returns, including reinvested dividend income. Bonds are total return, including reinvested coupons, on long-term government bonds. Bills denotes the total return, including any income, from Treasury bills. All returns are adjusted for inflation and are expressed as geometric mean returns. EP bonds denotes the equity risk premium relative to long-term government bonds. EP Bills denotes the equity premium relative to Treasury bills. MatPrem denotes the maturity premium for government bond returns relative to bill returns. RealXRate denotes the real (inflation-adjusted) change in the exchange rate against the US dollar.

Source: Dimson, Marsh, and Staunton (2018).

Given the high risk levels associated with equity securities, it is reasonable to expect that investors' tolerance for risk will tend to differ across equity markets. This is illustrated in Exhibit 6, which shows the results of a series of studies conducted by the Australian Securities Exchange on international differences in equity ownership. During the 2004–2014 period, equity ownership as a percentage of the population was lowest in South Korea (averaging 9.0 percent), followed by Germany (14.5 percent) and Sweden (17.7 percent). In contrast, Australia and New Zealand had the highest equity ownership as a percentage of the population (averaging more than 20 percent). In addition, there has been a relative decline in share ownership in several countries over recent years, which is not surprising given the recent overall uncertainty in global economies and the volatility in equity markets that this uncertainty has created.

EXHIBIT 6 International Comparisons of Stock Ownership: 2004–2014⁵

	2004	2006	2008	2010	2012	2014
Australia – Direct/Indirect	55%	46%	41%	43%	38%	36%
South Korea – Shares	8	7	10	10	10	N/A
Germany – Shares/Funds	16	16	14	13	15	13
Sweden – Shares	22	20	18	17	15	14
United Kingdom – Shares/Funds	22	20	18	N/A	17	N/A
New Zealand – Direct	23	26	N/A	22	23	26

Source: Adapted from the *2014 Australian Share Ownership Study* conducted by the Australian Securities Exchange (see <http://www.asx.com.au>). For Australia and the United States, the data pertain to direct and indirect ownership in equity markets; for other countries, the data pertain to direct ownership in shares and share funds. Data not available in specific years are shown as “N/A.”

An important implication from the above discussion is that equity securities represent a key asset class for global investors because of their unique return and risk characteristics. We next examine the various types of equity securities traded on global markets and their salient characteristics.

3. TYPES AND CHARACTERISTICS OF EQUITY SECURITIES

Companies finance their operations by issuing either debt or equity securities. A key difference between these securities is that debt is a liability of the issuing company, whereas equity is not. This means that when a company issues debt, it is contractually obligated to repay the amount it borrows (i.e., the principal or face value of the debt) at a specified future

⁵The percentages reported in the exhibit are based on samples of the adult population in each country who own equity securities either directly or indirectly through investment or retirement funds. For example, 36 percent of the adult population of Australia in 2014 (approximately 6.5 million people) owned equity securities either directly or indirectly. As noted in the study, it is not appropriate to make absolute comparisons across countries given the differences in methodology, sampling, timing, and definitions that have been used in different countries. However, trends across different countries can be identified.

date. The cost of using these funds is called interest, which the company is contractually obligated to pay until the debt matures or is retired.

When the company issues equity securities, it is not contractually obligated to repay the amount it receives from shareholders, nor is it contractually obligated to make periodic payments to shareholders for the use of their funds. Instead, shareholders have a claim on the company's assets after all liabilities have been paid. Because of this residual claim, equity shareholders are considered to be owners of the company. Investors who purchase equity securities are seeking total return (i.e., capital or price appreciation and dividend income), whereas investors who purchase debt securities (and hold until maturity) are seeking interest income. As a result, equity investors expect the company's management to act in their best interest by making operating decisions that will maximize the market price of their shares (i.e., shareholder wealth).

In addition to common shares (also known as ordinary shares or common stock), companies may also issue preference shares (also known as preferred stock), the other type of equity security. The following sections discuss the different types and characteristics of common and preference securities.

3.1. Common Shares

Common shares represent an ownership interest in a company and are the predominant type of equity security. As a result, investors share in the operating performance of the company, participate in the governance process through voting rights, and have a claim on the company's net assets in the case of liquidation. Companies may choose to pay out some, or all, of their net income in the form of cash dividends to common shareholders, but they are not contractually obligated to do so.⁶

Voting rights provide shareholders with the opportunity to participate in major corporate governance decisions, including the election of its board of directors, the decision to merge with or take over another company, and the selection of outside auditors. Shareholder voting generally takes place during a company's annual meeting. As a result of geographic limitations and the large number of shareholders, it is often not feasible for shareholders to attend the annual meeting in person. For this reason, shareholders may **vote by proxy**, which allows a designated party—such as another shareholder, a shareholder representative, or management—to vote on the shareholders' behalf.

Regular shareholder voting, where each share represents one vote, is referred to as **statutory voting**. Although it is the common method of voting, it is not always the most appropriate one to use to elect a board of directors. To better serve shareholders who own a small number of shares, **cumulative voting** is often used. Cumulative voting allows shareholders to direct their total voting rights to specific candidates, as opposed to having to allocate their voting rights evenly among all candidates. Total voting rights are based on the number of shares owned multiplied by the number of board directors being elected. For example, under cumulative voting, if four board directors are to be elected, a shareholder who owns 100 shares is entitled to 400 votes and can either cast all 400 votes in favor of a single candidate or spread them across the candidates in any proportion. In contrast, under

⁶It is also possible for companies to pay more than the current period's net income as dividends. Such payout policies are, however, generally not sustainable in the long run.

statutory voting, a shareholder would be able to cast only a maximum of 100 votes for each candidate.

The key benefit to cumulative voting is that it allows shareholders with a small number of shares to apply all of their votes to one candidate, thus providing the opportunity for a higher level of representation on the board than would be allowed under statutory voting.

Exhibit 7 describes the rights of Viacom Corporation's shareholders. In this case, a dual-share arrangement allows the founding chairman and his family to control more than 70 percent of the voting rights through the ownership of Class A shares. This arrangement gives them the ability to exert control over the board of director election process, corporate decision-making, and other important aspects of managing the company. A cumulative voting arrangement for any minority shareholders of Class A shares would improve their board representation.

EXHIBIT 7 Share Class Arrangements at Viacom Corporation⁷

Viacom has two classes of common stock: Class A, which is the voting stock, and Class B, which is the non-voting stock. There is no difference between the two classes except for voting rights; they generally trade within a close price range of each other. There are, however, far more shares of Class B outstanding, so most of the trading occurs in that class.

- **Voting Rights**—Holders of Class A common stock are entitled to one vote per share. Holders of Class B common stock do not have any voting rights, except as required by Delaware law. Generally, all matters to be voted on by Viacom stockholders must be approved by a majority of the aggregate voting power of the shares of Class A common stock present in person or represented by proxy, except as required by Delaware law.
- **Dividends**—Stockholders of Class A common stock and Class B common stock will share ratably in any cash dividend declared by the Board of Directors, subject to any preferential rights of any outstanding preferred stock. Viacom does not currently pay a cash dividend, and any decision to pay a cash dividend in the future will be at the discretion of the Board of Directors and will depend on many factors.
- **Conversion**—So long as there are 5,000 shares of Class A common stock outstanding, each share of Class A common stock will be convertible at the option of the holder of such share into one share of Class B common stock.
- **Liquidation Rights**—In the event of liquidation, dissolution, or winding-up of Viacom, all stockholders of common stock, regardless of class, will be entitled to share ratably in any assets available for distributions to stockholders of shares of Viacom common stock subject to the preferential rights of any outstanding preferred stock.

⁷This information has been adapted from Viacom's investor relations website and its 10-K filing with the US Securities and Exchange Commission; see www.viacom.com.

- **Split, Subdivision, or Combination**—In the event of a split, subdivision, or combination of the outstanding shares of Class A common stock or Class B common stock, the outstanding shares of the other class of common stock will be divided proportionally.
- **Preemptive Rights**—Shares of Class A common stock and Class B common stock do not entitle a stockholder to any preemptive rights enabling a stockholder to subscribe for or receive shares of stock of any class or any other securities convertible into shares of stock of any class of Viacom.

As seen in Exhibit 7, companies can issue different classes of common shares (Class A and Class B shares), with each class offering different ownership rights.⁸ For example, as shown in Exhibit 8, the Ford Motor Company has Class A shares (“Common Stock”), which are owned by the investing public. It also has Class B shares, which are owned only by the Ford family. The exhibit contains an excerpt from Ford’s *2017 Annual Report* (p. 144). Class A shareholders have 60 percent voting rights, whereas Class B shareholders have 40 percent. In the case of liquidation, however, Class B shareholders will not only receive the first US\$0.50 per share that is available for distribution (as will Class A shareholders), but they will also receive the next US\$1.00 per share that is available for distribution before Class A shareholders receive anything else. Thus, Class B shareholders have an opportunity to receive a larger proportion of distributions upon liquidation than do Class A shareholders.⁹

EXHIBIT 8 Share Class Arrangements at Ford Motor Company¹⁰

NOTE 21. CAPITAL STOCK AND AMOUNTS PER SHARE

All general voting power is vested in the holders of Common Stock and Class B Stock. Holders of our Common Stock have 60% of the general voting power and holders of our Class B Stock are entitled to such number of votes per share as will give them the remaining 40%. Shares of Common Stock and Class B Stock share equally in dividends when and as paid, with stock dividends payable in shares of stock of the class held.

⁸In some countries, including the United States, companies can issue different classes of shares, with Class A shares being the most common. The role and function of different classes of shares is described in more detail in Exhibit 8.

⁹For example, if US\$2.00 per share is available for distribution, the Common Stock (Class A) shareholders will receive US\$0.50 per share, while the Class B shareholders will receive US\$1.50 per share. However, if there is US\$3.50 per share available for distribution, the Common Stock shareholders will receive a total of US\$1.50 per share and the Class B shareholders will receive a total of US\$2.00 per share.

¹⁰Extracted from Ford Motor Company’s *2017 Annual Report* (http://s22.q4cdn.com/857684434/files/doc_financials/2017/annual/Final-Annual-Report-2017.pdf).

If liquidated, each share of Common Stock is entitled to the first \$0.50 available for distribution to holders of Common Stock and Class B Stock, each share of Class B Stock is entitled to the next \$1.00 so available, each share of Common Stock is entitled to the next \$0.50 so available, and each share of Common and Class B Stock is entitled to an equal amount thereafter.

3.2. Preference Shares

Preference shares (or preferred stock) rank above common shares with respect to the payment of dividends and the distribution of the company's net assets upon liquidation.¹¹ However, preference shareholders generally do not share in the operating performance of the company and do not have any voting rights, unless explicitly allowed for at issuance. Preference shares have characteristics of both debt securities and common shares. Similar to the interest payments on debt securities, the dividends on preference shares are fixed and are generally higher than the dividends on common shares. However, unlike interest payments, preference dividends are not contractual obligations of the company. Similar to common shares, preference shares can be perpetual (i.e., no fixed maturity date), can pay dividends indefinitely, and can be callable or puttable.

Exhibit 9 provides an example of callable preference shares issued by the GDL Fund to raise capital to redeem the remaining outstanding Series B Preferred shares. In this case, the purchaser of the shares will receive an ongoing dividend from the GDL Fund. If the GDL Fund chooses to buy back the shares, it must do so at the \$50 a share liquidation preference price. The purchasers of the shares also have the right to put back the shares to GDL at the \$50 a share price.

EXHIBIT 9 Callable Stock offering by the GDL Fund¹²

RYE, NY—March 26, 2018—The GDL Fund (NYSE:GDL) (the “Fund”) is pleased to announce the completion of a rights offering (the “Offering”) in which the Fund issued 2,624,025 Series C Cumulative Puttable and Callable Preferred Shares (the “Series C Preferred”), totaling \$131,201,250. Pursuant to the Offering, the Fund issued one non-transferable right (a “Right”) for each outstanding Series B Cumulative Puttable and Callable Preferred Share (the “Series B Preferred”) of the Fund to Series B Preferred shareholders of record as of February 14, 2018. Holders of Rights were entitled to purchase the Series C Preferred with any combination of cash or surrender of the Series B Preferred at

¹¹Preference shares have a lower priority than debt in the case of liquidation. That is, debt holders have a higher claim on a firm's assets in the event of liquidation and will receive what is owed to them first, followed by preference shareholders and then common shareholders.

¹²<https://www.businesswire.com/news/home/20180326005609/en/GDL-Fund-Successfully-Completes-Offering-Issues-131>

liquidation preference. Therefore, one Right plus \$50.00, or one Right plus one share of Series B Preferred with a liquidation value of \$50.00 per share, was required to purchase each share of the Series C Preferred. The Offering expired at 5:00 PM Eastern Time on March 20, 2018.

Dividends on preference shares can be cumulative, non-cumulative, participating, non-participating, or some combination thereof (i.e., cumulative participating, cumulative non-participating, non-cumulative participating, non-cumulative non-participating).

Dividends on **cumulative preference shares** accrue so that if the company decides not to pay a dividend in one or more periods, the unpaid dividends accrue and must be paid in full before dividends on common shares can be paid. In contrast, **non-cumulative preference shares** have no such provision. This means that any dividends that are not paid in the current or subsequent periods are forfeited permanently and are not accrued over time to be paid at a later date. However, the company is still not permitted to pay any dividends to common shareholders in the current period unless preferred dividends have been paid first.

Participating preference shares entitle the shareholders to receive the standard preferred dividend plus the opportunity to receive an additional dividend if the company's profits exceed a pre-specified level. In addition, participating preference shares can also contain provisions that entitle shareholders to an additional distribution of the company's assets upon liquidation, above the par (or face) value of the preference shares. **Non-participating preference shares** do not allow shareholders to share in the profits of the company. Instead, shareholders are entitled to receive only a fixed dividend payment and the par value of the shares in the event of liquidation. The use of participating preference shares is much more common for smaller, riskier companies where the possibility of future liquidation is more of a concern to investors.

Preference shares can also be convertible. **Convertible preference shares** entitle shareholders to convert their shares into a specified number of common shares. This conversion ratio is determined at issuance. Convertible preference shares have the following advantages:

- They allow investors to earn a higher dividend than if they invested in the company's common shares.
- They allow investors the opportunity to share in the profits of the company.
- They allow investors to benefit from a rise in the price of the common shares through the conversion option.
- Their price is less volatile than the underlying common shares because the dividend payments are known and more stable.

As a result, the use of convertible preference shares is a popular financing option in venture capital and private equity transactions in which the issuing companies are considered to be of higher risk and when it may be years before the issuing company "goes public" (i.e., issues common shares to the public).

Exhibit 10 provides examples of the types and characteristics of preference shares as issued by Tsakos Energy Navigation Ltd (TNP.PRE).

EXHIBIT 10 Examples of Preference Shares Issued by TEN Ltd¹³

Athens, Greece, June 21, 2018—TEN Ltd. (“TEN”) (NYSE: TNP), a leading diversified crude, product and LNG tanker operator, today announced the pricing of its public offering of its Series F Fixed-to-Floating Rate Cumulative Redeemable Perpetual Preferred Shares, par value \$1.00 per share, liquidation preference \$25.00 per share (“Series F Preferred Shares”). TEN will issue 5,400,000 Series F Preferred Shares at a price to the public of \$25.00 per share. Dividends will be payable on the Series F Preferred Shares to July 30, 2028 at a fixed rate equal to 9.50% per annum and from July 30, 2028, if not redeemed, at a floating rate. In connection with the offering, TEN has granted the underwriters a 30-day option to purchase 810,000 additional Series F Preferred Shares, which, if exercised in full, would result in total gross proceeds of \$155,250,000. TEN intends to use the net proceeds from the offering for general corporate purposes, which may include making vessel acquisitions and/or strategic investments and preferred share redemptions. Following the offering, TEN intends to file an application to list the Series F Preferred Shares on the New York Stock Exchange. The offering is expected to close on or about June 28, 2018.

4. PRIVATE VERSUS PUBLIC EQUITY SECURITIES

Our discussion so far has focused on equity securities that are issued and traded in public markets and on exchanges. Equity securities can also be issued and traded in private equity markets. **Private equity securities** are issued primarily to institutional investors via non-public offerings, such as private placements. Because they are not listed on public exchanges, there is no active secondary market for these securities. As a result, private equity securities do not have “market determined” quoted prices, are highly illiquid, and require negotiations between investors in order to be traded. In addition, financial statements and other important information needed to determine the fair value of private equity securities may be difficult to obtain because the issuing companies are typically not required by regulatory authorities to publish this information.

There are three primary types of private equity investments: venture capital, leveraged buyouts, and private investment in public equity (or PIPE). **Venture capital** investments provide “seed” or start-up capital, early-stage financing, or mezzanine financing to companies that are in the early stages of development and require additional capital for expansion. These funds are then used to finance the company’s product development and growth. Venture capitalists range from family and friends to wealthy individuals and private equity funds. Because the equity securities issued to venture capitalists are not publicly traded, they generally require a commitment of funds for a relatively long period of time; the opportunity to “exit” the investment is typically within 3 to 10 years from the initial start-up. The exit return earned by these private equity investors is based on the price that the securities can be

¹³<https://www.tenn.gr/wp-content/uploads/2018/06/tenn062118.pdf>

sold for if and when the start-up company first goes public, either via an **initial public offering** (IPO) on the stock market or by being sold to other investors.

A **leveraged buyout** (LBO) occurs when a group of investors (such as the company's management or a private equity partnership) uses a large amount of debt to purchase all of the outstanding common shares of a publicly traded company. In cases where the group of investors acquiring the company is primarily comprised of the company's existing management, the transaction is referred to as a **management buyout** (MBO). After the shares are purchased, they cease to trade on an exchange and the investor group takes full control of the company. In other words, the company is taken "private" or has been privatized. Companies that are candidates for these types of transactions generally have large amounts of undervalued assets (which can be sold to reduce debt) and generate high levels of cash flows (which are used to make interest and principal payments on the debt). The ultimate objective of a buyout (LBO or MBO) is to restructure the acquired company and later take it "public" again by issuing new shares to the public in the primary market.

The third type of private investment is a **private investment in public equity**, or PIPE.¹⁴ This type of investment is generally sought by a public company that is in need of additional capital quickly and is willing to sell a sizeable ownership position to a private investor or investor group. For example, a company may require a large investment of new equity funds in a short period of time because it has significant expansion opportunities, is facing high levels of indebtedness, or is experiencing a rapid deterioration in its operations. Depending on how urgent the need is and the size of the capital requirement, the private investor may be able to purchase shares in the company at a significant discount to the publicly-quoted market price. Exhibit 11 contains a recent PIPE transaction for the health care company TapImmune, which also included the proposed merger with Maker Therapeutics.

EXHIBIT 11 Example of a PIPE Transaction¹⁵

JACKSONVILLE, Florida, June 8, 2018—TapImmune Inc. (NASDAQ: TPIV), a clinical-stage immuno-oncology company, today announced that it has entered into security purchase agreements with certain institutional and accredited investors in connection with a private placement of its equity securities. The private placement will be led by New Enterprise Associates (NEA) with participation from Aisling Capital and Perceptive Advisors, among other new and existing investors. The private placement is expected to be completed concurrently with the closing of the proposed merger between TapImmune Inc. and Marker Therapeutics, Inc., which was previously announced on May 15, 2018.

Upon closing the private placement, TapImmune will issue 17,500,000 shares of its common stock at a price of \$4.00 per share. The aggregate offering size, before deducting the placement agent fees and other offering expenses, is expected to be \$70 million. Additionally, TapImmune will issue warrants to purchase 13,125,000 shares of TapImmune common stock at an exercise price of \$5.00 per share that will be exercisable for a period of five years from the date of issuance. The closing of the

¹⁴The term PIPE is widely used in the United States and is also used internationally, including in emerging markets.

¹⁵<https://tapimmune.com/2018/06/tapimmune-announces-pricing-of-70-million-private-placement/>

transaction, which is subject to the closing of the merger with Marker, the approval by TapImmune's stockholders as required by NASDAQ Stock Market Rules, and other customary closing conditions, is anticipated to occur by the end of the third quarter of 2018.

While the global private equity market is relatively small in comparison to the global public equity market, it has experienced considerable growth over the past three decades. According to a study of the private equity market sponsored by the *World Economic Forum* and spanning the period 1970–2007, approximately US\$3.6 trillion in debt and equity were acquired in leveraged buyouts. Of this amount, approximately 75 percent or US\$2.7 trillion worth of transactions occurred during 2001–2007.¹⁶ This pace continued with a further US\$2.9 trillion in transactions occurring during 2008–2017.¹⁷ While the US and the UK markets were the focus of most private equity investments during the 1980s and 1990s, private equity investments outside of these markets have grown substantially in recent years. In addition, the number of companies operating under private equity ownership has also grown. For example, during the mid-1990s, fewer than 2,000 companies were under LBO ownership compared to more than 20,000 companies that were under LBO ownership globally at the beginning of 2017. The holding period for private equity investments has also increased during this time period from 3 to 5 years (1980s and 1990s) to approximately 10 years.¹⁸

The move to longer holding periods has given private equity investors the opportunity to more effectively and patiently address any underlying operational issues facing the company and to better manage it for long-term value creation. Because of the longer holding periods, more private equity firms are issuing convertible preference shares because they provide investors with greater total return potential through their dividend payments and the ability to convert their shares into common shares during an IPO.

In operating a publicly traded company, management often feels pressured to focus on short-term results¹⁹ (e.g., meeting quarterly sales and earnings targets from analysts biased toward near-term price performance) instead of operating the company to obtain long-term sustainable revenue and earnings growth. By “going private,” management can adopt a more long-term focus and can eliminate certain costs that are necessary to operate a publicly traded company—such as the cost of meeting regulatory and stock exchange filing requirements, the cost of maintaining investor relations departments to communicate with shareholders and the media, and the cost of holding quarterly analyst conference calls.

As described above, public equity markets are much larger than private equity networks and allow companies more opportunities to raise capital that is subsequently actively traded in secondary markets. By operating under public scrutiny, companies are incentivized to be more open in terms of corporate governance and executive compensation to ensure that they are acting for the benefit of shareholders. In fact, some studies have shown that private equity firms score lower in terms of corporate governance effectiveness, which may be attributed to the fact that shareholders, analysts, and other stakeholders are able to influence management when corporate governance and other policies are public.

¹⁶Stromberg (2008).

¹⁷<https://www.statista.com/statistics/270195/global-private-equity-deal-value/>

¹⁸See, for example, Bailey, Wirth, and Zapol (2005).

¹⁹See, for example, Graham, Harvey, and Rajgopal (2005).

5. INVESTING IN NON-DOMESTIC EQUITY SECURITIES

Technological innovations and the growth of electronic information exchanges (electronic trading networks, the internet, etc.) have accelerated the integration and growth of global financial markets. As detailed previously, global capital markets have expanded at a much more rapid rate than global GDP in recent years; both primary and secondary international markets have benefited from the enhanced ability to rapidly and openly exchange information. Increased integration of equity markets has made it easier and less expensive for companies to raise capital and to expand their shareholder base beyond their local market. Integration has also made it easier for investors to invest in companies that are located outside of their domestic markets. This has enabled investors to further diversify and improve the risk and return characteristics of their portfolios by adding a class of assets with lower correlations to local country assets.

One barrier to investing globally is that many countries still impose “foreign restrictions” on individuals and companies from other countries that want to invest in their domestic companies. There are three primary reasons for these restrictions. The first is to limit the amount of control that foreign investors can exert on domestic companies. For example, some countries prevent foreign investors from acquiring a majority interest in domestic companies. The second is to give domestic investors the opportunity to own shares in the foreign companies that are conducting business in their country. For example, the Swedish home furnishings retailer IKEA abandoned efforts to invest in parts of the Asia/Pacific region because local governments did not want IKEA to maintain complete ownership of its stores. The third reason is to reduce the volatility of capital flows into and out of domestic equity markets. For example, one of the main consequences of the Asian Financial Crisis in 1997–98 was the large outflow of capital from such emerging market countries as Thailand, Indonesia, and South Korea. These outflows led to dramatic declines in the equity markets of these countries and significant currency devaluations and resulted in many governments placing restrictions on capital flows. Today, many of these same markets have built up currency reserves to better withstand capital outflows inherent in economic contractions and periods of financial market turmoil.

Studies have shown that reducing restrictions on foreign ownership has led to improved equity market performance over the long term.²⁰ Although restrictions vary widely, more countries are allowing increasing levels of foreign ownership. For example, Australia has sought tax reforms as a means to encourage international demand for its managed funds in order to increase its role as an international financial center.

Over the past two decades, three trends have emerged: a) an increasing number of companies have issued shares in markets outside of their home country; b) the number of companies whose shares are traded in markets outside of their home has increased; and c) an increasing number of companies are dual listed, which means that their shares are simultaneously issued and traded in two or more markets. Companies located in emerging markets have particularly benefited from these trends because they no longer have to be concerned with capital constraints or lack of liquidity in their domestic markets. These companies have found it easier to raise capital in the markets of developed countries because these markets generally have higher levels of liquidity and more stringent financial reporting requirements and accounting standards. Being listed on an international exchange has a

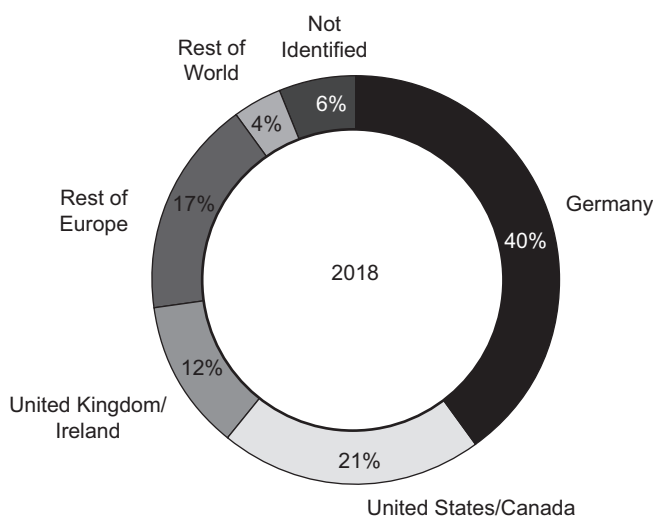
²⁰See, for example, Henry and Chari (2004).

number of benefits. It can increase investor awareness about the company's products and services, enhance the liquidity of the company's shares, and increase corporate transparency because of the additional market exposure and the need to meet a greater number of filing requirements.

Technological advancements have made it easier for investors to trade shares in foreign markets. The German insurance company Allianz SE recently delisted its shares from the NYSE and certain European markets because international investors increasingly traded its shares on the Frankfurt Stock Exchange. Exhibit 12 illustrates the extent to which the institutional shareholder base at BASF, a large German chemical corporation, has become increasingly global in nature.

EXHIBIT 12 Example of Increased Globalization of Share Ownership²¹

BASF is one of the largest publicly owned companies with over 500,000 shareholders and a high free float. An analysis of the shareholder structure carried out in March 2018 showed that, at 21% of share capital, the United States and Canada made up the largest regional group of institutional investors. Institutional investors from Germany made up 12%. Shareholders from United Kingdom and Ireland held 12% of BASF shares, while a further 17% are held by institutional investors from the rest of Europe. Around 28% of the company's share capital is held by private investors, most of whom are resident in Germany.



²¹ Adapted from BASF's investor relations website (www.basf.com). **Free float** refers to the extent that shares are readily and freely tradable in the secondary market.

5.1. Direct Investing

Investors can use a variety of methods to invest in the equity of companies outside of their local market. The most obvious is to buy and sell securities directly in foreign markets. However, this means that all transactions—including the purchase and sale of shares, dividend payments, and capital gains—are in the company's, not the investor's, domestic currency. In addition, investors must be familiar with the trading, clearing, and settlement regulations and procedures of that market. Investing directly often results in less transparency and more volatility because audited financial information may not be provided on a regular basis and the market may be less liquid. Alternatively, investors can use such securities as depository receipts and global registered shares, which represent the equity of international companies and are traded on local exchanges and in the local currencies. With these securities, investors have to worry less about currency conversions (price quotations and dividend payments are in the investor's local currency), unfamiliar market practices, and differences in accounting standards. The sections that follow discuss various securities that investors can invest in outside of their home market.

5.2. Depository Receipts

A **depository receipt**²² (DR) is a security that trades like an ordinary share on a local exchange and represents an economic interest in a foreign company. It allows the publicly listed shares of a foreign company to be traded on an exchange outside its domestic market. A depository receipt is created when the equity shares of a foreign company are deposited in a bank (i.e., the depository) in the country on whose exchange the shares will trade. The depository then issues receipts that represent the shares that were deposited. The number of receipts issued and the price of each DR is based on a ratio, which specifies the number of depository receipts to the underlying shares. Consequently, a DR may represent one share of the underlying stock, many shares of the underlying stock, or a fractional share of the underlying stock. The price of each DR will be affected by factors that affect the price of the underlying shares, such as company fundamentals, market conditions, analysts' recommendations, and exchange rate movements. In addition, any short-term valuation discrepancies between shares traded on multiple exchanges represent a quick arbitrage profit opportunity for astute traders to exploit. The responsibilities of the **depository bank** that issues the receipts include acting as custodian and as a registrar. This entails handling dividend payments, other taxable events, stock splits, and serving as the transfer agent for the foreign company whose securities the DR represents. The Bank of New York Mellon is the largest depository bank; however, Deutsche Bank, JPMorgan, and Citibank also offer depository services.²³

A DR can be **sponsored** or **unsponsored**. A sponsored DR is when the foreign company whose shares are held by the depository has a direct involvement in the issuance of the receipts. Investors in sponsored DRs have the same rights as the direct owners of the common shares (e.g., the right to vote and the right to receive dividends). In contrast, with an unsponsored DR, the underlying foreign company has no involvement with the issuance of the receipts. Instead, the depository purchases the foreign company's shares in its domestic

²²Note that the spellings *depository* and *depository* are used interchangeably in financial markets. In this chapter, we use the spelling *depository* throughout.

²³Boubakri, Cosset, and Samet (2010).

market and then issues the receipts through brokerage firms in the depository's local market. In this case, the depository bank, not the investors in the DR, retains the voting rights. Sponsored DRs are generally subject to greater reporting requirements than unsponsored DRs. In the United States, for example, sponsored DRs must be registered (meet the reporting requirements) with the US Securities and Exchange Commission (SEC). Exhibit 13 contains an example of a sponsored DR issued by Alibaba in September 2014.

EXHIBIT 13 Sponsored Depository Receipts²⁴

NEW YORK—(BUSINESS WIRE)—Citi today announced that Alibaba Group Holding Limited (“Alibaba Group”) has appointed Citi’s Issuer Services business, acting through Citibank, N.A., as the depository bank for its American Depositary Receipt (“ADR”) program. Alibaba Group’s ADRs, which began trading on September 19, 2014, represent the largest Depository Receipt program in initial public offering market history.

Alibaba Group’s ADR program was established through a \$25.03 billion initial public offering of 368,122,000 American Depositary Shares (“ADSs”), representing ordinary shares of Alibaba Group, which was priced at \$68 per ADS on September 18, 2014. The IPO ranks as the largest in history. The ADRs are listed on the New York Stock Exchange (the “NYSE”) under the trading symbol BABA. Each ADS represents one ordinary share of the Company. In its role as depository bank, Citibank will hold the underlying ordinary shares through its local custodian and issue ADSs representing such shares. Alibaba Group’s ADSs trade on the NYSE in ADR form.

There are two types of depository receipts: Global depository receipts (GDRs) and American depository receipts (ADRs), which are described below.

5.2.1. Global Depository Receipts

A **global depository receipt** (GDR) is issued outside of the company’s home country and outside of the United States. The depository bank that issues GDRs is generally located (or has branches) in the countries on whose exchanges the shares are traded. A key advantage of GDRs is that they are not subject to the foreign ownership and capital flow restrictions that may be imposed by the issuing company’s home country because they are sold outside of that country. The issuing company selects the exchange where the GDR is to be traded based on such factors as investors’ familiarity with the company or the existence of a large international investor base. The London and Luxembourg exchanges were the first ones to trade GDRs. Some other stock exchanges trading GDRs are the Dubai International Financial Exchange and the Singapore Stock Exchange. Currently, the London and Luxembourg exchanges are where most GDRs are traded because they can be issued in a more timely manner and at a lower cost. Regardless of the exchange they are traded on, the majority of GDRs are denominated in US dollars, although the number of GDRs denominated in pound sterling and euros is increasing. Note that although GDRs cannot be listed on US exchanges, they can be privately placed with institutional investors based in the United States.

²⁴<https://www.businesswire.com/news/home/20140924005984/en/Citi-Appointed-Depository-Bank-Alibaba-Group-Holding>

5.2.2. American Depositary Receipts

An **American depository receipt** (ADR) is a US dollar-denominated security that trades like a common share on US exchanges. First created in 1927, ADRs are the oldest type of depository receipts and are currently the most commonly traded depository receipts. They enable foreign companies to raise capital from US investors. Note that an ADR is one form of a GDR; however, not all GDRs are ADRs because GDRs cannot be publicly traded in the United States. The term **American depository share** (ADS) is often used in tandem with the term ADR. A depository share is a security that is actually traded in the issuing company's domestic market. That is, while American depository receipts are the certificates that are traded on US markets, American depository shares are the underlying shares on which these receipts are based.

There are four primary types of ADRs, with each type having different levels of corporate governance and filing requirements. Level I Sponsored ADRs trade in the over-the-counter (OTC) market and do not require full registration with the Securities and Exchange Commission (SEC). Level II and Level III Sponsored ADRs can trade on the New York Stock Exchange (NYSE), NASDAQ, and American Stock Exchange (AMEX). Level II and III ADRs allow companies to raise capital and make acquisitions using these securities. However, the issuing companies must fulfill all SEC requirements.

The fourth type of ADR, an SEC Rule 144A or a Regulation S depository receipt, does not require SEC registration. Instead, foreign companies are able to raise capital by privately placing these depository receipts with qualified institutional investors or to offshore non-US investors. Exhibit 14 summarizes the main features of ADRs.

EXHIBIT 14 Summary of the Main Features of American Depositary Receipts

	Level I (Unlisted)	Level II (Listed)	Level III (Listed)	Rule 144A (Unlisted)
Objectives	Develop and broaden US investor base with existing shares	Develop and broaden US investor base with existing shares	Develop and broaden US investor base with existing/new shares	Access qualified institutional buyers (QIBs)
Raising capital on US markets?	No	No	Yes, through public offerings	Yes, through private placements to QIBs
SEC registration	Form F-6	Form F-6	Forms F-1 and F-6	None
Trading	Over the counter (OTC)	NYSE, NASDAQ, or AMEX	NYSE, NASDAQ, or AMEX	Private offerings, resales, and trading through automated linkages such as PORTAL
Listing fees	Low	High	High	Low
Size and earnings requirements	None	Yes	Yes	None

Source: Adapted from Boubakri, Cosset, and Samet (2010): Table 1.

More than 2,000 DRs, from over 80 countries, currently trade on US exchanges. Based on current statistics, the total market value of DRs issued and traded is estimated at approximately US\$2 trillion, or 15 percent of the total dollar value of equities traded in US markets.²⁵

5.2.3. Global Registered Share

A **global registered share** (GRS) is a common share that is traded on different stock exchanges around the world in different currencies. Currency conversions are not needed to purchase or sell them, because identical shares are quoted and traded in different currencies. Thus, the same share purchased on the Swiss exchange in Swiss francs can be sold on the Tokyo exchange for Japanese yen. As a result, GRSs offer more flexibility than depository receipts because the shares represent an actual ownership interest in the company that can be traded anywhere and currency conversions are not needed to purchase or sell them. GRSs were created and issued by Daimler Chrysler in 1998 and by UBS AG in 2011.

5.2.4. Basket of Listed Depository Receipts

Another type of global security is a **basket of listed depository receipts** (BLDR), which is an exchange-traded fund (ETF) that represents a portfolio of depository receipts. An ETF is a security that tracks an index but trades like an individual share on an exchange. An equity-ETF is a security that contains a portfolio of equities that tracks an index. It trades throughout the day and can be bought, sold, or sold short, just like an individual share. Like ordinary shares, ETFs can also be purchased on margin and used in hedging or arbitrage strategies. The BLDR is a specific class of ETF security that consists of an underlying portfolio of DRs and is designed to track the price performance of an underlying DR index. For example, the Invesco BLDRS Asia 50 ADR Index Fund is a capitalization-weighted ETF designed to track the performance of 50 Asian market-based ADRs.

6. RISK AND RETURN CHARACTERISTICS OF EQUITY SECURITIES

Different types of equity securities have different ownership claims on a company's net assets. The type of equity security and its features affect its risk and return characteristics. The following sections discuss the different return and risk characteristics of equity securities.

6.1. Return Characteristics of Equity Securities

There are two main sources of equity securities' total return: price change (or capital gain) and dividend income. The price change represents the difference between the purchase price (P_{t-1}) and the sale price (P_t) of a share at the end of time $t - 1$ and t , respectively. Cash or stock dividends (D_t) represent distributions that the company makes to its shareholders during period t . Therefore, an equity security's total return is calculated as:

$$\text{Total return, } R_t = (P_t - P_{t-1} + D_t)/P_{t-1} \quad (1)$$

For non-dividend-paying stocks, the total return consists of price appreciation only. Companies that are in the early stages of their life cycle generally do not pay dividends

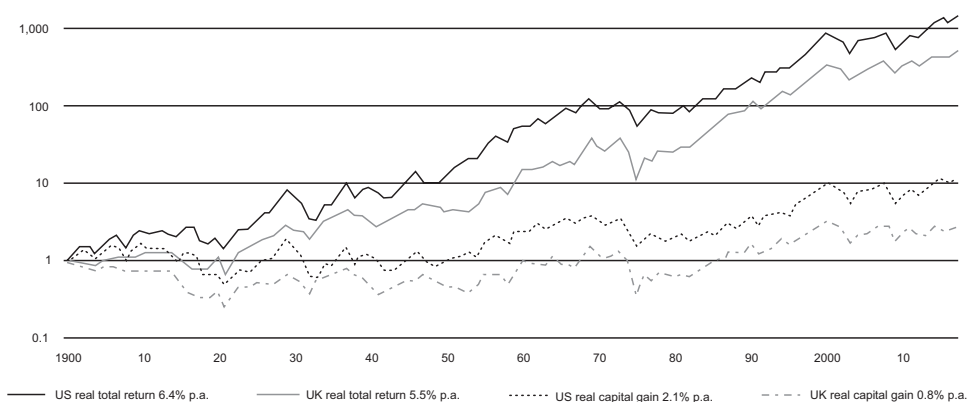
²⁵JPMorgan Depository Receipt Guide (2005):4.

because earnings and cash flows are reinvested to finance the company's growth. In contrast, companies that are in the mature phase of their life cycle may not have as many profitable growth opportunities; therefore, excess cash flows are often returned to investors via the payment of regular dividends or through share repurchases.

For investors who purchase depository receipts or foreign shares directly, there is a third source of return: **foreign exchange gains (or losses)**. Foreign exchange gains arise because of the change in the exchange rate between the investor's currency and the currency that the foreign shares are denominated in. For example, US investors who purchase the ADRs of a Japanese company will earn an additional return if the yen appreciates relative to the US dollar. Conversely, these investors will earn a lower total return if the yen depreciates relative to the US dollar. For example, if the total return for a Japanese company was 10 percent in Japan and the yen depreciated by 10 percent against the US dollar, the total return of the ADR would be (approximately) 0 percent. If the yen had instead appreciated by 10 percent against the US dollar, the total return of the ADR would be (approximately) 20 percent.

Investors that only consider price appreciation overlook an important source of return: the compounding that results from reinvested dividends. Reinvested dividends are cash dividends that the investor receives and uses to purchase additional shares. As Exhibit 15 shows, in the long run total returns on equity securities are dramatically influenced by the compounding effect of reinvested dividends. Between 1900 and 2016, US\$1 invested in US equities in 1900 would have grown in *real* terms to US\$1,402 with dividends reinvested, but to just US\$11.9 when taking only the price appreciation or capital gain into account. This corresponds to a real compounded return of 6.4 percent per year with dividends reinvested, versus only 2.1 percent per year without dividends reinvested. The comparable ending real wealth for bonds and bills are US\$9.8 and US\$2.60, respectively. These ending real wealth figures correspond to annualized real compounded returns of 2.0 percent on bonds and 0.8 percent on bills.

EXHIBIT 15 Impact of Reinvested Dividends on Cumulative Real Returns in the US and UK Equity Market: 1900–2016



Source: Dimson, Marsh, and Staunton (2017). This chart is updated annually and can be found at <http://publications.credit-suisse.com/index.cfm/publikationen-shop/research-institute/>.

6.2. Risk of Equity Securities

The risk of any security is based on the uncertainty of its future cash flows. The greater the uncertainty of its future cash flows, the greater the risk and the more variable or volatile the security's price. As discussed above, an equity security's total return is determined by its price change and dividends. Therefore, the risk of an equity security can be defined as the uncertainty of its expected (or future) total return. Risk is most often measured by calculating the standard deviation of the equity's expected total return.

A variety of different methods can be used to estimate an equity's expected total return and risk. One method uses the equity's average historical return and the standard deviation of this return as proxies for its expected future return and risk. Another method involves estimating a range of future returns over a specified period of time, assigning probabilities to those returns, and then calculating an expected return and a standard deviation of return based on this information.

The type of equity security, as well as its characteristics, affects the uncertainty of its future cash flows and therefore its risk. In general, preference shares are less risky than common shares for three main reasons:

1. Dividends on preference shares are known and fixed, and they account for a large portion of the preference shares' total return. Therefore, there is less uncertainty about future cash flows.
2. Preference shareholders receive dividends and other distributions before common shareholders.
3. The amount preference shareholders will receive if the company is liquidated is known and fixed as the par (or face) value of their shares. However, there is no guarantee that investors will receive that amount if the company experiences financial difficulty.

With common shares, however, a larger portion of shareholders' total return (or all of their total return for non-dividend shares) is based on future price appreciation and future dividends are unknown. If the company is liquidated, common shareholders will receive whatever amount (if any) is remaining after the company's creditors and preference shareholders have been paid. In summary, because the uncertainty surrounding the total return of preference shares is less than common shares, preference shares have lower risk and lower expected return than common shares.

It is important to note that some preference shares and common shares can be riskier than others because of their associated characteristics. For example, from an investor's point of view, puttable common or preference shares are less risky than their callable or non-callable counterparts because they give the investor the option to sell the shares to the issuer at a pre-determined price. This pre-determined price establishes a minimum price that investors will receive and reduces the uncertainty associated with the security's future cash flow. As a result, puttable shares generally pay a lower dividend than non-puttable shares.

Because the major source of total return for preference shares is dividend income, the primary risk affecting all preference shares is the uncertainty of future dividend payments. Regardless of the preference shares' features (callable, puttable, cumulative, etc.), the greater the uncertainty surrounding the issuer's ability to pay dividends, the greater the risk. Because the ability of a company to pay dividends is based on its future cash flows and net income, investors try to estimate these amounts by examining past trends or forecasting future amounts. The more earnings and the greater amount of cash flow that the company has had, or is expected to have, the lower the uncertainty and risk associated with its ability to pay future dividends.

Callable common or preference shares are riskier than their non-callable counterparts because the issuer has the option to redeem the shares at a pre-determined price. Because the call price limits investors' potential future total return, callable shares generally pay a higher dividend to compensate investors for the risk that the shares could be called in the future. Similarly, putable preference shares have lower risk than non-putable preference shares. Cumulative preference shares have lower risk than non-cumulative preference shares because the cumulative feature gives investors the right to receive any unpaid dividends before any dividends can be paid to common shareholders.

7. EQUITY SECURITIES AND COMPANY VALUE

Companies issue equity securities on primary markets to raise capital and increase liquidity. This additional liquidity also provides the corporation an additional “currency” (its equity), which it can use to make acquisitions and provide stock option-based incentives to employees. The primary goal of raising capital is to finance the company's revenue-generating activities in order to increase its net income and maximize the wealth of its shareholders. In most cases, the capital that is raised is used to finance the purchase of long-lived assets, capital expansion projects, research and development, the entry into new product or geographic regions, and the acquisition of other companies. Alternatively, a company may be forced to raise capital to ensure that it continues to operate as a going concern. In these cases, capital is raised to fulfill regulatory requirements, improve capital adequacy ratios, or to ensure that debt covenants are met.

The ultimate goal of management is to increase the book value (shareholders' equity on a company's balance sheet) of the company and maximize the market value of its equity. Although management actions can directly affect the book value of the company (by increasing net income or by selling or purchasing its own shares), they can only indirectly affect the market value of its equity. The book value of a company's equity—the difference between its total assets and total liabilities—increases when the company retains its net income. The more net income that is earned and retained, the greater the company's book value of equity. Because management's decisions directly influence a company's net income, they also directly influence its book value of equity.

The market value of the company's equity, however, reflects the collective and differing expectations of investors concerning the amount, timing, and uncertainty of the company's future cash flows. Rarely will book value and market value be equal. Although management may be accomplishing its objective of increasing the company's book value, this increase may not be reflected in the market value of the company's equity because it does not affect investors' expectations about the company's future cash flows. A key measure that investors use to evaluate the effectiveness of management in increasing the company's book value is the accounting return on equity.

7.1. Accounting Return on Equity

Return on equity (ROE) is the primary measure that equity investors use to determine whether the management of a company is effectively and efficiently using the capital they have provided to generate profits. It measures the total amount of net income available to common shareholders generated by the total equity capital invested in the company. It is

computed as net income available to ordinary shareholders (i.e., after preferred dividends have been deducted) divided by the average total book value of equity (BVE). That is:

$$\text{ROE}_t = \frac{\text{NI}_t}{\text{Average BVE}_t} = \frac{\text{NI}_t}{(\text{BVE}_t + \text{BVE}_{t-1})/2} \quad (2)$$

where NI_t is the net income in year t and the average book value of equity is computed as the book values at the beginning and end of year t divided by 2. Return on equity assumes that the net income produced in the current year is generated by the equity existing at the beginning of the year and any new equity that was invested during the year. Note that some formulas only use shareholders' equity at the beginning of year t (that is, the end of year $t - 1$) in the denominator. This assumes that only the equity existing at the beginning of the year was used to generate the company's net income during the year. That is:

$$\text{ROE}_t = \frac{\text{NI}_t}{\text{BVE}_{t-1}} \quad (3)$$

Both formulas are appropriate to use as long as they are applied consistently. For example, using beginning of the year book value is appropriate when book values are relatively stable over time or when computing ROE for a company annually over a period of time. Average book value is more appropriate if a company experiences more volatile year-end book values or if the industry convention is to use average book values in calculating ROE.

One caveat to be aware of when computing and analyzing ROE is that net income and the book value of equity are directly affected by management's choice of accounting methods, such as those relating to depreciation (straight line versus accelerated methods) or inventories (first in, first out versus weighted average cost). Different accounting methods can make it difficult to compare the return on equity of companies even if they operate in the same industry. It may also be difficult to compare the ROE of the same company over time if its accounting methods have changed during that time.

Exhibit 16 contains information on the net income and total book value of shareholders' equity for three **blue chip** (widely held large market capitalization companies that are considered financially sound and are leaders in their respective industry or local stock market) pharmaceutical companies: Pfizer, Novartis AG, and GlaxoSmithKline. The data are for their financial years ending December 2015 through December 2017.²⁶

EXHIBIT 16 Net Income and Book Value of Equity for Pfizer, Novartis AG, and GlaxoSmithKline (in Thousands of US Dollars)

	Financial Year Ending		
	31 Dec 2015	31 Dec 2016	31 Dec 2017
Pfizer			
Net income	\$6,960,000	\$7,215,000	\$21,308,000
Total stockholders' equity	\$64,998,000	\$59,840,000	\$71,287,000

²⁶Pfizer uses US GAAP to prepare its financial statements; Novartis and GlaxoSmithKline use International Financial Reporting Standards. Therefore, it would be inappropriate to compare the ROE of Pfizer to that of Novartis or GlaxoSmithKline.

	Financial Year Ending		
	31 Dec 2015	31 Dec 2016	31 Dec 2017
Novartis AG			
Net income	\$17,783,000	\$6,712,000	\$7,703,000
Total stockholders' equity	\$77,122,000	\$74,891,000	\$74,227,000
GlaxoSmithKline			
Net income	\$12,420,000	\$1,126,000	\$2,070,700
Total stockholders' equity	\$113,092,500	\$6,127,800	\$4,715,800

Using the average book value of equity, the return on equity for Pfizer for the years ending December 2016 and 2017 can be calculated as:

Return on equity for the year ending December 2016

$$ROE_{2016} = \frac{NI_{2016}}{(BVE_{2015} + BVE_{2016})/2} = \frac{7,215,000}{(64,998,000 + 59,840,000)/2} = 11.6\%$$

Return on equity for the year ending December 2017

$$ROE_{2017} = \frac{NI_{2017}}{(BVE_{2016} + BVE_{2017})/2} = \frac{21,308,000}{(59,840,000 + 71,287,000)/2} = 32.5\%$$

Exhibit 17 summarizes the return on equity for Novartis and GlaxoSmithKline in addition to Pfizer for 2016 and 2017.

EXHIBIT 17 Return on Equity for Pfizer, Novartis AG, and GlaxoSmithKline

	31 Dec 2016 (%)	31 Dec 2017 (%)
Pfizer	11.6	32.5
Novartis AG	8.8	10.3
GlaxoSmithKline	11.7	38.2

In the case of Pfizer, the ROE of 32.5 percent in 2017 indicates that the company was able to generate a return (profit) of US\$0.325 on every US\$1.00 of capital invested by shareholders. GlaxoSmithKline almost tripled its return on equity over this period, from 11.7 percent to 38.2 percent. Novartis's ROE remained relatively unchanged.

ROE can increase if net income increases at a faster rate than shareholders' equity or if net income decreases at a slower rate than shareholders' equity. In the case of GlaxoSmithKline, ROE almost tripled between 2016 and 2017 due to its net income almost doubling during the period and due to its average shareholder's fund decreasing by almost 45 percent during the period. Stated differently, in 2017 compared to 2016, GlaxoSmithKline was significantly more effective in using its equity capital to generate profits. In the case of Pfizer, its ROE increased dramatically from 11.6 percent to 32.5 percent in 2017 versus 2016 even though its average

shareholder equity increased by around 5 percent due to a nearly tripling of net income during the period.

An important question to ask is whether an increasing ROE is always good. The short answer is, “it depends.” One reason ROE can increase is if net income decreases at a slower rate than shareholders’ equity, which is not a positive sign. In addition, ROE can increase if the company issues debt and then uses the proceeds to repurchase some of its outstanding shares. This action will increase the company’s leverage and make its equity riskier. Therefore, it is important to examine the source of changes in the company’s net income *and* shareholders’ equity over time. The DuPont formula, which is discussed in a separate chapter, can be used to analyze the sources of changes in a company’s ROE.

The book value of a company’s equity reflects the historical operating and financing decisions of its management. The market value of the company’s equity reflects these decisions as well as investors’ collective assessment and expectations about the company’s future cash flows generated by its positive net present value investment opportunities. If investors believe that the company has a large number of these future cash flow-generating investment opportunities, the market value of the company’s equity will exceed its book value. Exhibit 18 shows the market price per share, the total number of shares outstanding, and the total book value of shareholders’ equity for Pfizer, Novartis AG, and GlaxoSmithKline at the end of December 2017. This exhibit also shows the total market value of equity (or market capitalization) computed as the number of shares outstanding multiplied by the market price per share.

EXHIBIT 18 Market Information for Pfizer, Novartis AG, and GlaxoSmithKline (in Thousands of US Dollars except market price)

	Pfizer	Novartis AG	GlaxoSmithKline
Market price	\$35.74	\$90.99	\$18.39
Total shares outstanding	5,952,900	2,317,500	4,892,200
Total shareholders’ equity	\$71,287,000	\$74,227,000	\$4,715,800
Total market value of equity	\$212,756,646	\$210,869,325	\$89,967,558

Note that in Exhibit 18, the total market value of equity for Pfizer is computed as:

$$\text{Market value of equity} = \text{Market price per share} \times \text{Shares outstanding}$$

$$\text{Market value of equity} = \text{US\$}35.74 \times 5,952,900 = \text{US\$}212,756,646$$

The book value of equity per share for Pfizer can be computed as:

$$\text{Book value of equity per share} = \text{Total shareholders’ equity} / \text{Shares outstanding}$$

$$\text{Book value of equity per share} = \text{US\$}71,287,000 / 5,952,900 = \text{US\$}11.98$$

A useful ratio to compute is a company’s price-to-book ratio, which is also referred to as the market-to-book ratio. This ratio provides an indication of investors’ expectations about a company’s future investment and cash flow-generating opportunities. The larger the price-to-book ratio (i.e., the greater the divergence between market value per share and book value

per share), the more favorably investors will view the company's future investment opportunities. For Pfizer the price-to-book ratio is:

$$\text{Price-to-book ratio} = \text{Market price per share} / \text{Book value of equity per share}$$

$$\text{Price-to-book ratio} = \text{US\$35.74} / \text{US\$11.98} = 2.98$$

Exhibit 19 contains the market price per share, book value of equity per share, and price-to-book ratios for Novartis and GlaxoSmithKline in addition to Pfizer.

EXHIBIT 19 Pfizer, Novartis AG, and GlaxoSmithKline

	Pfizer	Novartis AG	GlaxoSmithKline
Market price per share	\$35.74	\$90.99	\$18.39
Book value of equity per share	\$11.98	\$32.03	\$0.96
Price-to-book ratio	2.98	2.84	19.16

The market price per share of all three companies exceeds their respective book values, so their price-to-book ratios are all greater than 1.00. However, there are significant differences in the sizes of their price-to-book ratios. GlaxoSmithKline has the largest price-to-book ratio, while the price-to-book ratios of Pfizer and Novartis are similar to each other. This suggests that investors believe that GlaxoSmithKline has substantially higher future growth opportunities than either Pfizer or Novartis.

It is not appropriate to compare the price-to-book ratios of companies in different industries because their price-to-book ratios also reflect investors' outlook for the industry. Companies in high growth industries, such as technology, will generally have higher price-to-book ratios than companies in slower growth (i.e., mature) industries, such as heavy equipment. Therefore, it is more appropriate to compare the price-to-book ratios of companies in the same industry. A company with relatively high growth opportunities compared to its industry peers would likely have a higher price-to-book ratio than the average price-to-book ratio of the industry.

Book value and return on equity are useful in helping analysts determine value but can be limited as a primary means to estimate a company's true or intrinsic value, which is the present value of its future projected cash flows. In Exhibit 20, Warren Buffett, one of the most successful investors in the world and CEO of Berkshire Hathaway, provides an explanation of the differences between the book value of a company and its intrinsic value in a letter to shareholders. As discussed above, market value reflects the collective and differing expectations of investors concerning the amount, timing, and uncertainty of a company's future cash flows. A company's intrinsic value can only be estimated because it is impossible to predict the amount and timing of its future cash flows. However, astute investors—such as Buffett—have been able to profit from discrepancies between their estimates of a company's intrinsic value and the market value of its equity.

EXHIBIT 20 Book Value versus Intrinsic Value²⁷

We regularly report our per-share book value, an easily calculable number, though one of limited use. Just as regularly, we tell you that what counts is intrinsic value, a number that is impossible to pinpoint but essential to estimate.

For example, in 1964, we could state with certitude that Berkshire's per-share book value was \$19.46. However, that figure considerably overstated the stock's intrinsic value since all of the company's resources were tied up in a sub-profitable textile business. Our textile assets had neither going-concern nor liquidation values equal to their carrying values. In 1964, then, anyone inquiring into the soundness of Berkshire's balance sheet might well have deserved the answer once offered up by a Hollywood mogul of dubious reputation: "Don't worry, the liabilities are solid."

Today, Berkshire's situation has reversed: Many of the businesses we control are worth far more than their carrying value. (Those we don't control, such as Coca-Cola or Gillette, are carried at current market values.) We continue to give you book value figures, however, because they serve as a rough, understated, tracking measure for Berkshire's intrinsic value.

We define intrinsic value as the discounted value of the cash that can be taken out of a business during its remaining life. Anyone calculating intrinsic value necessarily comes up with a highly subjective figure that will change both as estimates of future cash flows are revised and as interest rates move. Despite its fuzziness, however, intrinsic value is all-important and is the only logical way to evaluate the relative attractiveness of investments and businesses.

To see how historical input (book value) and future output (intrinsic value) can diverge, let's look at another form of investment, a college education. Think of the education's cost as its "book value." If it is to be accurate, the cost should include the earnings that were foregone by the student because he chose college rather than a job.

For this exercise, we will ignore the important non-economic benefits of an education and focus strictly on its economic value. First, we must estimate the earnings that the graduate will receive over his lifetime and subtract from that figure an estimate of what he would have earned had he lacked his education. That gives us an excess earnings figure, which must then be discounted, at an appropriate interest rate, back to graduation day. The dollar result equals the intrinsic economic value of the education.

7.2. The Cost of Equity and Investors' Required Rates of Return

When companies issue debt (or borrow from a bank) or equity securities, there is a cost associated with the capital that is raised. In order to maximize profitability and shareholder wealth, companies attempt to raise capital efficiently so as to minimize these costs.

When a company issues debt, the cost it incurs for the use of these funds is called the cost of debt. The cost of debt is relatively easy to estimate because it reflects the periodic interest (or coupon) rate that the company is contractually obligated to pay to its

²⁷Extracts from Berkshire Hathaway's 2008 Annual Report (www.berkshirehathaway.com).

bondholders (lenders). When a company raises capital by issuing equity, the cost it incurs is called the cost of equity. Unlike debt, however, the company is not contractually obligated to make any payments to its shareholders for the use of their funds. As a result, the cost of equity is more difficult to estimate.

Investors require a return on the funds they provide to the company. This return is called the investor's minimum required rate of return. When investors purchase the company's debt securities, their minimum required rate of return is the periodic rate of interest they charge the company for the use of their funds. Because all of the bondholders receive the same periodic rate of interest, their required rate of return is the same. Therefore, the company's cost of debt and the investors' minimum required rate of return on the debt are the same.

When investors purchase the company's equity securities, their minimum required rate of return is based on the future cash flows they expect to receive. Because these future cash flows are both uncertain and unknown, the investors' minimum required rate of return must be estimated. In addition, the minimum required return may differ across investors based on their expectations about the company's future cash flows. As a result, the company's cost of equity may be different from the investors' minimum required rate of return on equity.²⁸ Because companies try to raise capital at the lowest possible cost, the company's cost of equity is often used as a proxy for the investors' *minimum* required rate of return.

In other words, the cost of equity can be thought of as the minimum expected rate of return that a company must offer its investors to purchase its shares in the primary market and to maintain its share price in the secondary market. If this expected rate of return is not maintained in the secondary market, then the share price will adjust so that it meets the minimum required rate of return demanded by investors. For example, if investors require a higher rate of return on equity than the company's cost of equity, they would sell their shares and invest their funds elsewhere resulting in a decline in the company's share price. As the share price declined, the cost of equity would increase to reach the higher rate of return that investors require.

Two models commonly used to estimate a company's cost of equity (or investors' minimum required rate of return) are the dividend discount model (DDM) and the capital asset pricing model (CAPM). These models are discussed in detail in other curriculum chapters.

The cost of debt (after tax) and the cost of equity (i.e., the minimum required rates of return on debt and equity) are integral components of the capital budgeting process because they are used to estimate a company's weighted average cost of capital (WACC). Capital budgeting is the decision-making process that companies use to evaluate potential long-term investments. The WACC represents the minimum required rate of return that the company must earn on its long-term investments to satisfy all providers of capital. The company then chooses among those long-term investments with expected returns that are greater than its WACC.

SUMMARY

Equity securities play a fundamental role in investment analysis and portfolio management. The importance of this asset class continues to grow on a global scale because of the need for equity capital in developed and emerging markets, technological innovation, and the growing

²⁸Another important factor that can cause a firm's cost of equity to differ from investors' required rate of return on equity is the flotation cost associated with equity

sophistication of electronic information exchange. Given their absolute return potential and ability to impact the risk and return characteristics of portfolios, equity securities are of importance to both individual and institutional investors.

This chapter introduces equity securities and provides an overview of global equity markets. A detailed analysis of their historical performance shows that equity securities have offered average real annual returns superior to government bills and bonds, which have provided average real annual returns that have only kept pace with inflation. The different types and characteristics of common and preference equity securities are examined, and the primary differences between public and private equity securities are outlined. An overview of the various types of equity securities listed and traded in global markets is provided, including a discussion of their risk and return characteristics. Finally, the role of equity securities in creating company value is examined as well as the relationship between a company's cost of equity, its accounting return on equity, investors' required rate of return, and the company's intrinsic value.

We conclude with a summary of the key components of this chapter:

- Common shares represent an ownership interest in a company and give investors a claim on its operating performance, the opportunity to participate in the corporate decision-making process, and a claim on the company's net assets in the case of liquidation.
- Callable common shares give the issuer the right to buy back the shares from shareholders at a price determined when the shares are originally issued.
- Puttable common shares give shareholders the right to sell the shares back to the issuer at a price specified when the shares are originally issued.
- Preference shares are a form of equity in which payments made to preference shareholders take precedence over any payments made to common stockholders.
- Cumulative preference shares are preference shares on which dividend payments are accrued so that any payments omitted by the company must be paid before another dividend can be paid to common shareholders. Non-cumulative preference shares have no such provisions, implying that the dividend payments are at the company's discretion and are thus similar to payments made to common shareholders.
- Participating preference shares allow investors to receive the standard preferred dividend plus the opportunity to receive a share of corporate profits above a pre-specified amount. Non-participating preference shares allow investors to simply receive the initial investment plus any accrued dividends in the event of liquidation.
- Callable and puttable preference shares provide issuers and investors with the same rights and obligations as their common share counterparts.
- Private equity securities are issued primarily to institutional investors in private placements and do not trade in secondary equity markets. There are three types of private equity investments: venture capital, leveraged buyouts, and private investments in public equity (PIPE).
- The objective of private equity investing is to increase the ability of the company's management to focus on its operating activities for long-term value creation. The strategy is to take the "private" company "public" after certain profit and other benchmarks have been met.
- Depository receipts are securities that trade like ordinary shares on a local exchange but which represent an economic interest in a foreign company. They allow the publicly listed shares of foreign companies to be traded on an exchange outside their domestic market.
- American depository receipts are US dollar-denominated securities trading much like standard US securities on US markets. Global depository receipts are similar to ADRs but contain certain restrictions in terms of their ability to be resold among investors.

- Underlying characteristics of equity securities can greatly affect their risk and return.
- A company's accounting return on equity is the total return that it earns on shareholders' book equity.
- A company's cost of equity is the minimum rate of return that stockholders require the company to pay them for investing in its equity.

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PRACTICE PROBLEMS

1. Which of the following is *not* a characteristic of common equity?
 - A. It represents an ownership interest in the company.
 - B. Shareholders participate in the decision-making process.
 - C. The company is obligated to make periodic dividend payments.
2. The type of equity voting right that grants one vote for each share of equity owned is referred to as:
 - A. proxy voting.
 - B. statutory voting.
 - C. cumulative voting.
3. All of the following are characteristics of preference shares *except*:
 - A. They are either callable or puttable.
 - B. They generally do not have voting rights.
 - C. They do not share in the operating performance of the company.
4. Participating preference shares entitle shareholders to:
 - A. participate in the decision-making process of the company.
 - B. convert their shares into a specified number of common shares.
 - C. receive an additional dividend if the company's profits exceed a pre-determined level.

5. Which of the following statements about private equity securities is *incorrect*?
 - A. They cannot be sold on secondary markets.
 - B. They have market-determined quoted prices.
 - C. They are primarily issued to institutional investors.
6. Venture capital investments:
 - A. can be publicly traded.
 - B. do not require a long-term commitment of funds.
 - C. provide mezzanine financing to early-stage companies.
7. Which of the following statements *most accurately* describes one difference between private and public equity firms?
 - A. Private equity firms are focused more on short-term results than public firms.
 - B. Private equity firms' regulatory and investor relations operations are less costly than those of public firms.
 - C. Private equity firms are incentivized to be more open with investors about governance and compensation than public firms.
8. Emerging markets have benefited from recent trends in international markets. Which of the following has *not* been a benefit of these trends?
 - A. Emerging market companies do not have to worry about a lack of liquidity in their home equity markets.
 - B. Emerging market companies have found it easier to raise capital in the markets of developed countries.
 - C. Emerging market companies have benefited from the stability of foreign exchange markets.
9. When investing in unsponsored depository receipts, the voting rights to the shares in the trust belong to:
 - A. the depository bank.
 - B. the investors in the depository receipts.
 - C. the issuer of the shares held in the trust.
10. With respect to Level III sponsored ADRs, which of the following is *least likely* to be accurate? They:
 - A. have low listing fees.
 - B. are traded on the NYSE, NASDAQ, and AMEX.
 - C. are used to raise equity capital in US markets.
11. A basket of listed depository receipts, or an exchange-traded fund, would *most likely* be used for:
 - A. gaining exposure to a single equity.
 - B. hedging exposure to a single equity.
 - C. gaining exposure to multiple equities.
12. Calculate the total return on a share of equity using the following data:
Purchase price: \$50
Sale price: \$42
Dividend paid during holding period: \$2
 - A. -12.0%
 - B. -14.3%
 - C. -16.0%

13. If a US-based investor purchases a euro-denominated ETF and the euro subsequently depreciates in value relative to the dollar, the investor will have a total return that is:
- A. lower than the ETF's total return.
 - B. higher than the ETF's total return.
 - C. the same as the ETF's total return.
14. Which of the following is *incorrect* about the risk of an equity security? The risk of an equity security is:
- A. based on the uncertainty of its cash flows.
 - B. based on the uncertainty of its future price.
 - C. measured using the standard deviation of its dividends.
15. From an investor's point of view, which of the following equity securities is the *least* risky?
- A. Putable preference shares.
 - B. Callable preference shares.
 - C. Non-callable preference shares.
16. Which of the following is *least likely* to be a reason for a company to issue equity securities on the primary market?
- A. To raise capital.
 - B. To increase liquidity.
 - C. To increase return on equity.
17. Which of the following is *not* a primary goal of raising equity capital?
- A. To finance the purchase of long-lived assets.
 - B. To finance the company's revenue-generating activities.
 - C. To ensure that the company continues as a going concern.
18. Which of the following statements is *most accurate* in describing a company's book value?
- A. Book value increases when a company retains its net income.
 - B. Book value is usually equal to the company's market value.
 - C. The ultimate goal of management is to maximize book value.
19. Calculate the book value of a company using the following information:
- | | |
|------------------------------|-------------|
| Number of shares outstanding | 100,000 |
| Price per share | €52 |
| Total assets | €12,000,000 |
| Total liabilities | €7,500,000 |
| Net Income | €2,000,000 |
- A. €4,500,000.
 - B. €5,200,000.
 - C. €6,500,000.
20. Which of the following statements is *least accurate* in describing a company's market value?
- A. Management's decisions do not influence the company's market value.
 - B. Increases in book value may not be reflected in the company's market value.
 - C. Market value reflects the collective and differing expectations of investors.

21. Calculate the return on equity (ROE) of a stable company using the following data:

Total sales	£2,500,000
Net income	£2,000,000
Beginning of year total assets	£50,000,000
Beginning of year total liabilities	£35,000,000
Number of shares outstanding at the end of the year	1,000,000
Price per share at the end of the year	£20

- A. 10.0%.
B. 13.3%.
C. 16.7%.
22. Holding all other factors constant, which of the following situations will *most likely* lead to an increase in a company's return on equity?
- A. The market price of the company's shares increases.
B. Net income increases at a slower rate than shareholders' equity.
C. The company issues debt to repurchase outstanding shares of equity.
23. Which of the following measures is the *most difficult* to estimate?
- A. The cost of debt.
B. The cost of equity.
C. Investors' required rate of return on debt.
24. A company's cost of equity is often used as a proxy for investors':
- A. average required rate of return.
B. minimum required rate of return.
C. maximum required rate of return.