The following is a review of the Analysis of Fixed Income Investments principles designed to address the learning outcome statements set forth by CFA Institute. This topic is also covered in:

FEATURES OF DEBT SECURITIES

Study Session 15

EXAM FOCUS

Fixed income securities, historically, were promises to pay a stream of semiannual payments for a given number of years and then repay the loan amount at the maturity date. The contract between the borrower and the lender (the indenture) can really be designed to have any payment stream or pattern that the parties agree to. Types of contracts that are used frequently have specific names, and there is no shortage of those (for you to learn) here.

You should pay special attention to how the periodic payments are determined (fixed, floating, and variants of these) and to how/when the principal is repaid (calls, puts, sinking funds, amortization, and prepayments). These features all affect the value of the securities and will come up again when you learn how to value these securities and compare their risks, both at Level I and Level II.

LOS 52.a: Explain the purposes of a bond's indenture and describe affirmative and negative covenants.

CFA® Program Curriculum, Volume 5, page 294

The contract that specifies all the rights and obligations of the issuer and the owners of a fixed income security is called the **bond indenture**. The indenture defines the obligations of and restrictions on the borrower and forms the basis for all future transactions between the bondholder and the issuer. These contract provisions are known as *covenants* and include both *negative covenants* (prohibitions on the borrower) and *affirmative covenants* (actions that the borrower promises to perform) sections.

Negative covenants include restrictions on asset sales (the company can't sell assets that have been pledged as collateral), negative pledge of collateral (the company can't claim that the same assets back several debt issues simultaneously), and restrictions on additional borrowings (the company can't borrow additional money unless certain financial conditions are met).

Affirmative covenants include the maintenance of certain financial ratios and the timely payment of principal and interest. For example, the borrower might promise to maintain the company's current ratio at a value of two or higher. If this value of the current ratio is not maintained, then the bonds could be considered to be in (technical) default.

LOS 52.b: Describe the basic features of a bond, the various coupon rate structures, and the structure of floating-rate securities.

CFA® Program Curriculum, Volume 5, page 295

A *straight* (option-free) bond is the simplest case. Consider a Treasury bond that has a 6% **coupon** and **matures** five years from today in the amount of $1,000. This bond is a promise by the **issuer** (the U.S. Treasury) to pay 6% of the $1,000 **par value** (i.e., $60) each year for five years and to repay the $1,000 five years from today.

With Treasury bonds and almost all U.S. corporate bonds, the annual interest is paid in two semiannual installments. Therefore, this bond will make nine coupon payments (one every six months) of $30 and a final payment of $1,030 (the par value plus the final coupon payment) at the end of five years. This stream of payments is fixed when the bonds are issued and does not change over the life of the bond.

Note that each semiannual coupon is one-half the coupon rate (which is always expressed as an annual rate) times the par value, which is sometimes called the *face value* or *maturity value*. An 8% Treasury note with a face value of $100,000 will make a coupon payment of $4,000 every six months and a final payment of $104,000 at maturity.

A U.S. Treasury bond is denominated (of course) in U.S. dollars. Bonds can be issued in other currencies as well. The **currency denomination** of a bond issued by the Mexican government will likely be Mexican pesos. Bonds can be issued that promise to make payments in any currency.

Coupon Rate Structures: Zero-Coupon Bonds, Step-Up Notes, Deferred-Coupon Bonds

Zero-coupon bonds are bonds that do not pay periodic interest. They pay the par value at maturity and the interest results from the fact that zero-coupon bonds are initially sold at a price below par value (i.e., they are sold at a significant *discount to par value*). Sometimes we will call debt securities with no explicit interest payments *pure discount securities*.

Step-up notes have coupon rates that increase over time at a specified rate. The increase may take place one or more times during the life of the issue.

Deferred-coupon bonds carry coupons, but the initial coupon payments are deferred for some period. The coupon payments accrue, at a compound rate, over the deferral period and are paid as a lump sum at the end of that period. After the initial deferment period has passed, these bonds pay regular coupon interest for the rest of the life of the issue (to maturity).

Floating-Rate Securities

Floating-rate securities are bonds for which the coupon interest payments over the life of the security vary based on a specified interest rate or index. For example, if market interest rates are moving up, the coupons on straight floaters will rise as well. In essence, these bonds have coupons that are reset periodically (normally every 3, 6, or 12 months) based on prevailing market interest rates.

The most common procedure for setting the coupon rates on floating-rate securities is one which starts with a *reference rate* (e.g., the rate on certain U.S. Treasury securities or the London Interbank Offered Rate [LIBOR]) and then adds or subtracts a stated *margin* to or from that reference rate. The quoted margin may also vary over time according to a schedule that is stated in the indenture. The schedule is often referred to as the *coupon formula*. Thus, to find the new coupon rate, you would use the following coupon formula:

$$\text{new coupon rate} = \text{reference rate} \pm \text{quoted margin}$$

Just as with a fixed-coupon bond, a semiannual coupon payment will be one-half the (annual) coupon *rate*.

An **inverse floater** is a floating-rate security with a coupon formula that actually increases the coupon rate when a reference interest rate decreases, and vice versa. A coupon formula such as coupon rate = 12% – reference rate accomplishes this.

Some floating-rate securities have coupon formulas based on inflation and are referred to as **inflation-indexed bonds**. A bond with a coupon formula of 3% + annual change in the Consumer Price Index is an example of such an inflation-linked security.

The parties to the bond contract can limit their exposure to extreme fluctuations in the reference rate by placing upper and lower limits on the coupon rate. The upper limit, which is called a **cap**, puts a maximum on the interest rate paid by the borrower/issuer. The lower limit, called a **floor**, puts a minimum on the periodic coupon interest payments received by the lender/security owner. When both limits are present simultaneously, the combination is called a **collar**.

Consider a floating-rate security (floater) with a coupon rate at issuance of 5%, a 7% cap, and a 3% floor. If the coupon rate (reference rate plus the margin) rises above 7%, the borrower will pay (lender will receive) only 7% for as long as the coupon rate, according to the formula, remains at or above 7%. If the coupon rate falls below 3%, the borrower will pay 3% for as long as the coupon rate, according to the formula, remains at or below 3%.

LOS 52.c: Define accrued interest, full price, and clean price.

CFA® Program Curriculum, Volume 5, page 301

When a bond trades between coupon dates, the seller is entitled to receive any interest earned from the previous coupon date through the date of the sale. This is known as **accrued interest** and is an amount that is payable by the buyer (new owner) of the bond. The new owner of the bond will receive all of the next coupon payment and will then recover any accrued interest paid on the date of purchase. The accrued interest is calculated as the fraction of the coupon period that has passed times the coupon.

In the United States, the convention is for the bond buyer to pay any accrued interest to the bond seller. The amount that the buyer pays to the seller is the agreed-upon price of the bond (the **clean price**) plus any accrued interest. In the United States, bonds trade with the next coupon attached, which is termed *cum coupon.* A bond traded without the right to the next coupon is said to be trading *ex-coupon.* The total amount paid, including accrued interest, is known as the **full (or dirty) price** of the bond. The full price = clean price + accrued interest.

If the issuer of the bond is in default (i.e., has not made periodic obligatory coupon payments), the bond will trade without accrued interest, and it is said to be trading *flat*.

LOS 52.d: Explain the provisions for redemption and retirement of bonds.

CFA® Program Curriculum, Volume 5, page 301

The redemption provisions for a bond refer to how, when, and under what circumstances the principal will be repaid.

Coupon Treasury bonds and most corporate bonds are **nonamortizing**; that is, they pay only interest until maturity, at which time the entire par or face value is repaid. This repayment structure is referred to as a *bullet bond* or *bullet maturity*. Alternatively, the bond terms may specify that the principal be repaid through a series of payments over time or all at once prior to maturity, at the option of either the bondholder or the issuer (putable and callable bonds).

Amortizing securities make periodic *interest and principal* payments over the life of the bond. A conventional mortgage is an example of an amortizing loan; the payments are all equal, and each payment consists of the periodic interest payment and the repayment of a portion of the original principal. For a fully amortizing loan, the final (level) payment at maturity retires the last remaining principal on the loan (e.g., a typical automobile loan).

Prepayment options give the issuer/borrower the right to accelerate the principal repayment on a loan. These options are present in mortgages and other amortizing loans. Amortizing loans require a series of equal payments that cover the periodic interest and reduce the outstanding principal each time a payment is made. When a person gets a home mortgage or an automobile loan, she often has the right to prepay it at any time, in whole or in part. If the borrower sells the home or auto, she is required to pay the

loan off in full. The significance of a prepayment option to an investor in a mortgage or mortgage-backed security is that there is additional uncertainty about the cash flows to be received compared to a security that does not permit prepayment.

Call provisions give the issuer the right (but not the obligation) to retire all or a part of an issue prior to maturity. If the bonds are called, the bondholders have no choice but to surrender their bonds for the call price because the bonds quit paying interest when they are called. Call features give the issuer the opportunity to replace higher-than-market coupon bonds with lower-coupon issues.

Typically, there is a period of years after issuance during which the bonds cannot be called. This is termed the period of *call protection* because the bondholder is protected from a call over this period. After the period (if any) of call protection has passed, the bonds are referred to as *currently callable.*

There may be several call dates specified in the indenture, each with a lower call price. Customarily, when a bond is called on the first permissible call date, the call price is above the par value. If the bonds are not called entirely or not called at all, the call price declines over time according to a schedule. For example, a call schedule may specify that a 20-year bond can be called after five years at a price of 110 (110% of par), with the call price declining to 105 after ten years and 100 in the 15th year.

Nonrefundable bonds prohibit the call of an issue using the proceeds from a lower coupon bond issue. Thus, a bond may be callable but not refundable. A bond that is *noncallable* has absolute protection against a call prior to maturity. In contrast, a callable but *nonrefundable* bond can be called for any reason other than refunding.

When bonds are called through a call option or through the provisions of a sinking fund, the bonds are said to be **redeemed**. If a lower coupon issue is sold to provide the funds to call the bonds, the bonds are said to be **refunded**.

Sinking fund provisions provide for the repayment of principal through a series of payments over the life of the issue. For example, a 20-year issue with a face amount of $300 million may require that the issuer retire $20 million of the principal every year beginning in the sixth year. This can be accomplished in one of two ways—*cash* or *delivery*:

- *Cash payment*. The issuer may deposit the required cash amount annually with the issue's trustee who will then retire the applicable proportion of bonds (1/15 in this example) by using a selection method such as a lottery. The bonds selected by the trustee are typically retired at par.
- *Delivery of securities.* The issuer may purchase bonds with a total par value equal to the amount that is to be retired in that year in the market and deliver them to the trustee who will retire them.

If the bonds are trading below par value, delivery of bonds purchased in the open market is the less expensive alternative. If the bonds are trading above the par value, delivering cash to the trustee to retire the bonds at par is the less expensive way to satisfy the sinking fund requirement.

An **accelerated sinking fund provision** allows the issuer the choice of retiring more than the amount of bonds specified in the sinking fund requirement. As an example, the issuer may be required to redeem $5 million par value of bonds each year but may choose to retire up to $10 million par value of the issue.

Regular and Special Redemption Prices

When bonds are redeemed under the call provisions specified in the bond indenture, these are known as regular redemptions, and the call prices are referred to as **regular redemption prices.** However, when bonds are redeemed to comply with a sinking fund provision or because of a property sale mandated by government authority, the redemption prices (typically par value) are referred to as **special redemption prices.** Asset sales may be forced by a regulatory authority (e.g., the forced divestiture of an operating division by antitrust authorities or through a governmental unit's right of eminent domain). Examples of sales forced through the government's right of eminent domain would be a forced sale of privately held land for erection of electric utility lines or for construction of a freeway.

LOS 52.e: Identify common options embedded in a bond issue, explain the importance of embedded options, and identify whether an option benefits the issuer or the bondholder.

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The following are examples of *embedded options*, embedded in the sense that they are an integral part of the bond contract and are not a separate security. Some embedded options are exercisable at the option of the issuer of the bond, and some are exercisable at the option of the purchaser of the bond.

Security owner options. In the following cases, the option embedded in the fixed-income security is an option granted to the security holder (lender) and gives additional value to the security, compared to an otherwise-identical straight (option-free) security.

1. A *conversion option* grants the holder of a bond the right to convert the bond into a fixed number of common shares of the issuer. This choice/option has value for the bondholder. An exchange option is similar but allows conversion of the bond into a security other than the common stock of the issuer.

2. *Put provisions* give bondholders the right to sell (put) the bond to the issuer at a specified price prior to maturity. The put price is generally par if the bonds were originally issued at or close to par. If interest rates have risen and/or the creditworthiness of the issuer has deteriorated so that the market price of such bonds has fallen below par, the bondholder may choose to exercise the put option and require the issuer to redeem the bonds at the put price.

3. *Floors* set a minimum on the coupon rate for a floating-rate bond, a bond with a coupon rate that changes each period based on a reference rate, usually a short-term rate such as LIBOR or the T-bill rate.

Security issuer options. In these cases, the embedded option is exercisable at the option of the issuer of the fixed income security. Securities where the issuer chooses whether to exercise the embedded option will be priced less (or with a higher coupon) than otherwise identical securities that do not contain such an option.

1. *Call provisions* give the bond issuer the right to redeem (pay off) the issue prior to maturity. The details of a call feature are covered later in this topic review.

2. *Prepayment options* are included in many amortizing securities, such as those backed by mortgages or car loans. A prepayment option gives the borrower/issuer the right to prepay the loan balance prior to maturity, in whole or in part, without penalty. Loans may be prepaid for a variety of reasons, such as the refinancing of a mortgage due to a drop in interest rates or the sale of a home prior to its loan maturity date.

3. *Accelerated sinking fund provisions* are embedded options held by the issuer that allow the issuer to (annually) retire a larger proportion of the issue than is required by the sinking fund provision, up to a specified limit.

4. *Caps* set a maximum on the coupon rate for a floating-rate bond, a bond with a coupon rate that changes each period based on a reference rate, usually a short-term rate such as LIBOR or the T-bill rate.

Professor's Note: Caps and floors do not need to be "exercised" by the issuer or bondholder. They are considered embedded options because a cap is equivalent to a series of interest rate call options and a floor is equivalent to a series of interest rate put options. This will be explained further in our topic review of Option Markets and Contracts in the Study Session covering derivatives.

To summarize, the following embedded options favor the issuer/borrower: (1) the right to call the issue, (2) an accelerated sinking fund provision, (3) a prepayment option, and (4) a cap on the floating coupon rate that limits the amount of interest payable by the borrower/issuer. Bonds with these options will tend to have higher market yields since bondholders will require a premium relative to otherwise identical option-free bonds.

The following embedded options favor the *bondholders*: (1) conversion provisions, (2) a floor that guarantees a minimum interest payment to the bondholder, and (3) a put option. The market yields on bonds with these options will tend to be lower than otherwise identical option-free bonds since bondholders will find these options attractive.

LOS 52.f: Describe methods used by institutional investors in the bond market to finance the purchase of a security (i.e., margin buying and repurchase agreements).

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Margin buying involves borrowing funds from a broker or a bank to purchase securities where the securities themselves are the collateral for the margin loan. The margin amount (percentage of the bonds' value) is regulated by the Federal Reserve in the United States, under the Securities and Exchange Act of 1934.

A **repurchase (repo) agreement** is an arrangement by which an institution sells a security with a commitment to buy it back at a later date at a specified (higher) price. The *repurchase price* is greater than the selling price and accounts for the interest charged by the buyer, who is, in effect, lending funds to the seller. The interest rate implied by the two prices is called the *repo rate*, which is the annualized percentage difference between the two prices. A repurchase agreement for one day is called an *overnight repo*, and an agreement covering a longer period is called a *term repo*. The interest cost of a *repo* is customarily less than the rate a bank or brokerage would charge on a margin loan.

Most bond-dealer financing is achieved through repurchase agreements rather than through margin loans. Repurchase agreements are not regulated by the Federal Reserve, and the collateral position of the lender/buyer in a repo is better in the event of bankruptcy of the dealer, since the security is owned by the lender. The lender has only the obligation to sell it back at the price specified in the repurchase agreement, rather than simply having a claim against the assets of the dealer for the margin loan amount.

KEY CONCEPTS

LOS 52.a

A bond's indenture contains the obligations, rights, and any options available to the issuer or buyer of a bond.

Covenants are the specific conditions of the obligation:

- Affirmative covenants specify actions that the borrower/issuer must perform.
- Negative covenants prohibit certain actions by the borrower/issuer.

LOS 52.b

Bonds have the following features:

- Maturity—the term of the loan agreement.
- Par value (face value)—the principal amount of the fixed income security that the bond issuer promises to pay the bondholders over the life of the bond.
- Coupon rate—the rate used to determine the periodic interest to be paid on the principal amount. Interest can be paid annually or semiannually, depending on the terms. Coupon rates may be fixed or variable.

Types of coupon rate structures:

- Option-free (straight) bonds pay periodic interest and repay the par value at maturity.
- Zero-coupon bonds pay no explicit periodic interest and are sold at a discount to par value.
- Step-up notes have a coupon rate that increases over time according to a specified schedule.
- Deferred-coupon bonds initially make no coupon payments (they are deferred for a period of time). At the end of the deferral period, the accrued (compound) interest is paid, and the bonds then make regular coupon payments until maturity.
- A floating (variable) rate bond has a coupon formula that is based on a reference rate (usually LIBOR) and a quoted margin. A cap is a maximum coupon rate the issuer must pay, and a floor is a minimum coupon rate the bondholder will receive on any coupon date.

LOS 52.c

Accrued interest is the interest earned since the last coupon payment date and is paid by a bond buyer to a bond seller.

Clean price is the quoted price of the bond without accrued interest.

Full price refers to the quoted price plus any accrued interest.

LOS 52.d

Bond retirement (payoff) provisions:

- Amortizing securities make periodic payments that include both interest and principal payments so that the entire principal is paid off with the last payment unless prepayment occurs.
- A prepayment option is contained in some amortizing debt and allows the borrower to pay off principal at any time prior to maturity, in whole or in part.
- Sinking fund provisions require that a part of a bond issue be retired at specified dates, typically annually.
- Call provisions enable the borrower (issuer) to buy back the bonds from the investors (redeem them) at a call price(s) specified in the bond indenture.
- Callable but nonrefundable bonds can be called prior to maturity, but their redemption cannot be funded by the issuance of bonds with a lower coupon rate.

LOS 52.e

Embedded options that benefit the issuer reduce the bond's value (increase the yield) to a bond purchaser. Examples are:

- Call provisions.
- Accelerated sinking fund provisions.
- Caps (maximum interest rates) on floating-rate bonds.

Embedded options that benefit bondholders increase the bond's value (decrease the yield) to a bond purchaser. Examples are:

- Conversion options (the option of bondholders to convert their bonds into shares of the bond issuer's common stock).
- Put options (the option of bondholders to return their bonds to the issuer at a predetermined price).
- Floors (minimum interest rates) on floating-rate bonds.

LOS 52.f

Institutions can finance secondary market bond purchases by margin buying (borrowing some of the purchase price, using the securities as collateral) or, more commonly, by repurchase (repo) agreements, an arrangement in which an institution sells a security with a promise to buy it back at an agreed-upon higher price at a specified date in the future.

CONCEPT CHECKERS

1. A bond's indenture:
   A. contains its covenants.
   B. is the same as a debenture.
   C. relates only to its interest and principal payments.

2. A bond has a par value of $5,000 and a coupon rate of 8.5% payable semiannually. What is the dollar amount of the semiannual coupon payment?
   A. $212.50.
   B. $238.33.
   C. $425.00.

3. From the perspective of the bondholder, which of the following pairs of options would add value to a straight (option-free) bond?
   A. Call option and conversion option.
   B. Put option and conversion option.
   C. Prepayment option and put option.

4. A 10-year bond pays no interest for three years, then pays $229.25, followed by payments of $35 semiannually for seven years and an additional $1,000 at maturity. This bond is a:
   A. step-up bond.
   B. zero-coupon bond.
   C. deferred-coupon bond.

5. Consider a $1 million semiannual-pay, floating-rate issue where the rate is reset on January 1 and July 1 each year. The reference rate is 6-month LIBOR, and the stated margin is +1.25%. If 6-month LIBOR is 6.5% on July 1, what will the next semiannual coupon be on this issue?
   A. $38,750.
   B. $65,000.
   C. $77,500.

6. Which of the following statements is *most accurate* with regard to floating-rate issues that have caps and floors?
   A. A cap is an advantage to the bondholder, while a floor is an advantage to the issuer.
   B. A floor is an advantage to the bondholder, while a cap is an advantage to the issuer.
   C. A floor is an advantage to both the issuer and the bondholder, while a cap is a disadvantage to both the issuer and the bondholder.

7. An investor paid a full price of $1,059.04 each for 100 bonds. The purchase was between coupon dates, and accrued interest was $23.54 per bond. What is each bond's clean price?
   A. $1,000.00.
   B. $1,035.50.
   C. $1,082.58.

8. Which of the following statements is *most accurate* with regard to a call provision?
   A. A call provision will benefit the issuer in times of declining interest rates.
   B. A callable bond will trade at a higher price than an identical noncallable bond.
   C. A nonrefundable bond provides more protection to the bondholder than a noncallable bond.

9. Which of the following *most accurately* describes the maximum price for a currently callable bond?
   A. Its par value.
   B. The call price.
   C. The present value of its par value.

Use the following information to answer Questions 10 and 11.

Consider $1,000,000 par value, 10-year, 6.5% coupon bonds issued on January 1, 2005. The bonds are callable and there is a sinking fund provision. The market rate for similar bonds is currently 5.7%. The main points of the prospectus are summarized as follows:

Call dates and prices:

- 2005 through 2009: 103.
- After January 1, 2010: 102.

Additional information:

- The bonds are non-refundable.
- The sinking fund provision requires that the company redeem $100,000 of the principal amount each year. Bonds called under the terms of the sinking fund provision will be redeemed at par.
- The credit rating of the bonds is currently the same as at issuance.

10. Using only the preceding information, Gould should conclude that:
   A. the bonds do not have call protection.
   B. the bonds were issued at and currently trade at a premium.
   C. given current rates, the bonds will likely be called and new bonds issued.

11. Which of the following statements about the sinking fund provisions for these bonds is *most accurate*?
   A. An investor would benefit from having his bonds called under the provision of the sinking fund.
   B. An investor will receive a premium if the bond is redeemed prior to maturity under the provision of the sinking fund.
   C. The bonds do not have an accelerated sinking fund provision.

12. An investor buying bonds on margin:
   A. must pay interest on a loan.
   B. is not restricted by government regulation of margin lending.
   C. actually lends the bonds to a bank or brokerage house.

13. Which of the following is *least likely* a provision for the early retirement of debt by the issuer?
    A. A conversion option.
    B. A call option.
    C. A sinking fund.

14. A mortgage is *least likely*:
    A. a collateralized loan.
    B. subject to early retirement.
    C. characterized by highly predictable cash flows.

ANSWERS – CONCEPT CHECKERS

1. A An indenture is the contract between the company and its bondholders and contains the bond's covenants.

2. A The annual interest is 8.5% of the $5,000 par value, or $425. Each semiannual payment is one-half of that, or $212.50.

3. B A put option and a conversion option have positive value to the bondholder. The other options favor the issuer and result in a lower value than a straight bond.

4. C This pattern describes a deferred-coupon bond. The first payment of $229.25 is the value of the accrued coupon payments for the first three years.

5. A The coupon rate is 6.5 + 1.25 = 7.75. The semiannual coupon payment equals (0.5)(0.0775)($1,000,000) = $38,750.

6. B A cap is a maximum on the coupon rate and is advantageous to the issuer. A floor is a minimum on the coupon rate and is, therefore, advantageous to the bondholder.

7. B The full price includes accrued interest, while the clean price does not. Therefore, the clean price is 1,059.04 – 23.54 = $1,035.50.

8. A A call provision gives the bond issuer the right to call the bond at a price specified in the bond indenture. A bond issuer may want to call a bond if interest rates have decreased so that borrowing costs can be decreased by replacing the bond with a lower coupon issue.

9. B Whenever the price of the bond increases above the strike price stipulated on the call option, it will be optimal for the issuer to call the bond. So theoretically, the price of a currently callable bond should never rise above its call price.

10. A The bonds are callable in 2005, indicating that there is no period of call protection. We have no information about the pricing of the bonds at issuance. The company may not *refund* the bonds (i.e., they cannot call the bonds with the proceeds of a new debt offering at the currently lower market yield).

11. C The sinking fund provision does not provide for an acceleration of the sinking fund redemptions. With rates currently below the coupon rate, the bonds will be trading at a premium to par value. Thus, a sinking fund call at par would not benefit a bondholder.

12. A Margin loans require the payment of interest, and the rate is typically higher than funding costs when repurchase agreements are used.

13. A A conversion option allows bondholders to exchange their bonds for common stock. The option is held by the boldholder, not the issuer.

14. C A mortgage can typically be retired early in whole or in part (a prepayment option), and this makes the cash flows difficult to predict with any accuracy.