

# Debt Securities

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## **Using this study guide.**

This study guide is intended for use prior to attempting the accompanying exam. Read the complete study guide at your convenience before beginning the exam. You may cover the material in one session or break the material into several shorter sessions, whichever best fits your learning style. All answers to exam questions are covered in this document.

Before you begin, you may find it useful to click the third and/or fourth buttons from the left of your screen to utilize thumbnails and bookmarks for navigating your way through this document. Thumbnails break the document into separate pages. Clicking the third thumbnail quickly advances the screen to the third page, clicking the sixth thumbnail quickly advances the screen to the sixth page, clicking the first thumbnail sends the screen back to page one, etc. Bookmarks operate similarly by advancing to different sections of the document. Simply use your mouse to click on the section of your choice.

## Debt Securities

### Bonds

Bonds are debt securities, which may be issued by corporations, municipalities, the U.S. government or its agencies. They are issued as a means of acquiring capital. When an investor buys a bond, he lends money for a specified period of time at a fixed interest rate. Bonds can be issued for time periods of up to thirty years although the minimum period is five years for a bond to be considered long term. Individual bonds generally have a par value of \$1,000. Bonds issued by the federal government are treasury bonds. The U.S. government is the nation's largest borrower and the most secure credit risk for the investor because its treasury bills, bonds, and notes are backed by the full faith and credit of the government. Bonds issued by state governments or their political subdivisions are municipal bonds. The interest earned on these bonds is federal tax-free. They are sold in denominations of \$5,000. Bonds issued by companies are corporate bonds and are referred to as funded debt.

Bondholders do not have ownership in the issuing company or a voice in its management. Bondholders do receive preferential treatment over common and preferred stockholders if a company files bankruptcy. Bonds are considered senior securities because the bondholders are creditors.

Interest on a bond accumulates daily and is normally paid in semiannual payments over the life of the bond. The last interest payment is made when the bond matures, and it is generally combined with repayment of the principal. Each bond has its own maturity date and may be structured for term, serial, or balloon maturity. The principal of a bond with term maturity is repaid in one lump sum. Portions of the principal of a bond with serial maturity are due at intervals over a period of years. If a bond has a balloon maturity, the issuer repays part of the principal before the final maturity date and pays off the major portion of the bond at maturity.

Bonds are usually issued as a certificate which is the evidence of ownership. Each certificate includes the name of the issuing corporation, the type of bond, the principal amount, the date of issue, the date of maturity, the call features, the interest rate and payment date. Where the interest is payable if the bond is a coupon bond and a reference to the trust indenture is also included on the certificate. Owners of U.S. Treasury securities do not really possess any

physical certificates. A Federal Reserve Board computer now keeps track of who owns all treasury bonds and when the interest should be paid.

In the past, most bonds were issued in coupon or bearer form. Issuers kept no records of who bought the bonds, and there were no investors' names printed on the certificates. Whoever possesses coupons bonds can collect the interest, sell or redeem them. No proof of ownership is necessary to sell a bearer bond. By the 1980's, it was suspected that so much money was being illegally laundered through the purchase of bearer bonds that the Tax Act of 1982 was passed. The act essentially ended the issuance of bearer bonds. There are many old coupon bonds still in circulation, but no new ones.

The most common type of bond issued today is the registered bond. A transfer agent records the investor's name and it appears on the face of the bond certificate. If a bond is fully registered, the transfer agent maintains a list of bondholders and updates the list as bond ownership changes. The transfer agent cancels the seller's certificate and issues another certificate in the buyer's name. For book-entry bonds, the transfer agent maintains the bond's ownership records, but the owners do not receive certificates. Most U.S. government bonds are sold only in book-entry form.

After issue, bonds are bought and sold in the secondary market at par, below par (at a discount) or above par (at a premium). Par value is used to calculate the bond's interest payment and it represents the principal to be repaid at maturity. The two major factors which affect a bond's market price are the issuer's financial stability and the trends in interest rates. Bond prices and interest rates normally move counter to each other. When interest rates are moving up, bond prices in the market place must move down so that they will return a yield to an investor which approximates what the investor could get on newly issued bonds. When interest rates are moving down, bond prices in the market place must move up so that the higher coupon will be worth more than a newly issued bond and the yield to an investor will approximate what the investor could get on newly issued bonds.

Standard & Poor's and Moody's rate both corporate and municipal bonds and base their ratings mostly on the issuer's ability to pay interest and principal payments. Standard & Poor's ratings range from AAA to D; Moody's ratings range from Aaa to D. Standard & Poor's and Moody's rate the issues that pay to be rated or those with enough investor interest. If a bond is not rated, it may be because the issuing agency is too small to justify the expense and may or may not be of poor quality.

The highest degree of safety is in bonds backed by the full faith and credit of the U.S. government. These securities include U.S. t-bills, notes, bonds, Series EE and HH bonds, Ginnie Maes, and New Housing Authority bonds. Next in line for safety are the government agency issues including Federal Farm Credit Banks, Federal Home Loan Bank, and Fannie Maes. Normally, the next level of safety is in municipality issues. These include general obligation bonds and revenue bonds in that order. Last in this hierarchy are corporate bonds which range in safety from quite safe to quite risky. The order of safety within corporate bonds is: equipment trust certificates, first mortgage bonds, debentures, subordinated debentures, and income bonds. Even though a mortgage bond is secured by collateral and a debenture is unsecured, the risk of the debenture is directly related to the credit rating of the borrower. The more credit worthy the borrower, the safer the loan. Some debentures, such as those to major corporations like AT&T or IBM, are safer than most mortgage bonds. The entire listing in this paragraph is a rough guideline and certainly there are exceptions to this hierarchy.

Investors in certain municipal bonds may feel more at ease to know that several companies such as AMBAC, FGIC, and MBIA now offer insurance for bonds. The insurance premium is paid by the issuer of the bonds and insured bonds are automatically rated AAA by Standard & Poor's and Aaa by Moody's.

Liquidity is the ease with which a security can be converted to cash in the marketplace. A large number of buyers and sellers and a high volume of trading translate into high liquidity.

Bonds may be callable or non-callable. A call feature lets the issuer redeem a bond before its maturity date, either in whole or in part. The issuer may notify the bondholders that it will redeem the bonds at a specified price on a specified date. The right to call gives the issuer the advantage of flexibility in its financial management. A callability feature usually gives the bond a price

higher than par, which is an advantage to the investor. The earlier an issuing corporation calls a bond, the **higher** the premium it has to pay the investor. The reasoning here is that the investor's anticipated future income flow is disrupted and he must be compensated for this inconvenience. Refinancing in the bond business is called refunding because long-term debt is usually called funded debt. The predominant reason an issuer might exercise the right to call bonds is to lower the yearly interest costs and thereby reduce the overall operating costs. It is the responsibility of the registered representative to inform his clients when their bonds are called.

An optional call allows the issuer to decide when to create the new issue and when to use the proceeds of the new debt to call back the old debt. A mandatory call is generally found on bonds with a sinking fund. The decision on how much of the issue and when to call the issue is pre-set by a schedule found in the bond's indenture. An extraordinary call is most common in municipal revenue bonds and is often called the catastrophe call. If a bond is not callable, the issuer usually can buy bonds in the open market (known as tendering) in order to retire all or a portion of its debt.

If bonds are open-end, owners of bonds offered initially and bonds issued subsequently by a corporation have equal claims on assets if a company defaults. If bonds are closed-end, assets can be used to secure only the bonds offered initially. That is, closed-end mortgage bonds are more secure than open-end mortgage bonds.

Some bonds have a put option. In return for accepting a lower interest rate, an investor receives the right to put or sell the bond to the issuer at full face value at some time before maturity. Put bonds generally offer the investor the right to require the issuer to buy a bond back **at par** for up to 3 years from the issue date of the bond. The investor decides when and if the buy back takes place. Puts protect investors who are worried that interest rates may rise sharply soon after the bonds are purchased, sending bond prices down. In such a situation, investors who have bought put bonds may demand issuers buy them back at par.

Coupon (or nominal) yield is specified at issuance and printed on the certificate or face of the bond. Current yield is the annual return of the security divided by the amount of investment required to own the security. If a customer buys a bond with a nominal yield of 10% and a face value of \$1,000, the annual return of \$100 (10% of the face value \$1,000) is divided by the current market price to get the current yield. If a bond price rises, its yield declines; if its price declines, its yield rises.

Yield-to-maturity is the rate of return on a bond that takes into account the difference between the bond's acquisition price and its maturity price as well as the interest income. Whenever the coupon rate is lower than the yield-to-maturity, the bond is selling at a discount or below par. If the coupon rate is higher than the yield-to-maturity, the bond is selling at a premium or above par. If the coupon rate and the yield-to-maturity are the same, the bond is selling at par. The current yield is always different from the yield-to-maturity if the bondholder pays a price other than par.

When the market price is more than par, yield to maturity is computed by subtracting the current yield and the annual profit per year and dividing the sum by the average of par and current market price. To compute yield to maturity for a 9% bond at 105 (\$1,050 per bond) with 10 years to maturity, the calculation is:  $1,000 \times 9\%$  (**90**) subtract  $50 / 10$  (**5**) divided by the average of  $1000 + 1050$  (**1025**) or  $85$  divided by  $1025 = 8.3\%$ .

When the market price is less than par, yield to maturity is computed by adding the current yield and the annual profit per year and dividing the sum by the average of par and current market price. To compute yield to maturity for an 8% bond at 80 (\$800 per bond) with 10 years to maturity, the calculation is:  $1,000 \times 8\%$  (**80**) added to  $200 / 10$  (**20**) divided by the average of  $1000 + 800$  (**900**) or  $100$  divided by  $900 = 11\%$ .

All regulatory agencies require that yield to call is stated on the investor's confirmation when he is buying a callable bond. If a client buys a callable bond selling at a premium and the bond has inadequate call protection, the client faces the real possibility that the bond will be called prior to maturity. If this happens, the yield will be less than the yield to maturity and the customer will not regain the amount of his investment. Due to this risk, all yields to call (when lower than the yield to maturity) must be stated on the investor's confirmation.

Railroads, airlines, trucking companies and oil corporations often use equipment trust certificates to finance the purchase of needed equipment. These transportation companies usually make a 20% down payment and finance the balance of the cost of their equipment. The companies generally pay off a percentage of their loans each year. In this way, if the corporation defaults on its payments, the lender can repossess the collateral and sell it to cover his investment. The title to the new equipment is usually held by a bank until the loan is paid and the amount borrowed is usually less than the full value of the property.

Companies use income bonds to reorganize and come out of bankruptcy. The companies pay interest only if the company has enough income to meet the interest payment and if the board of directors declares such a payment. Income bonds are not appropriate for customers seeking consistent income because interest payments do not accumulate.

Zero coupon bonds are long term investments and are backed by the U.S. government. Zero coupon bonds pay no interest, but are attractive to investors because they are always issued at a discount from the face value of the bond, similar to the way U.S. Savings Bonds work. The return on zero coupon bonds is derived solely from the price increase from purchase date to sale or maturity date. Zero coupon bonds, however, are considered more volatile than other bonds of similar quality.

Convertible bonds are those that may be converted to common stock. Therefore, convertible bonds are issued by corporations only. The price or rate of conversion is specified at the time of issuance and is indicated on the bond indenture. The majority of convertible bonds are debentures.

There are many advantages to convertibility for the issuer. Since the investor is gaining the right to convert, convertible bonds carry lower interest rates which saves the corporation considerable yearly costs. Bonds with a conversion clause are generally readily marketable because the right to convert increases the chances of a large number of potential purchasers in the marketplace. Since convertible bonds usually carry a call provision, corporations have the right to force investors to convert if market conditions dictate. That is, if the price of a corporation's common stock rises, its bond prices will rise also. If the price rises particularly high, the corporation can

exercise forced conversion, which results in definite savings of interest for the company.

Convertible bonds have many benefits to investors. Since a bondholder is a creditor, interest must be paid according to the terms of the issuance and the principal must be paid at maturity. If the company has financial problems, convertible bondholders have priority over common stockholders in the event of liquidation. If the business prospers, the company's stock price will rise and the bond prices will tend to increase as well. That is, a convertible bondholder has the same advantages of growth potential as common stockholders **without** the risk.

## U.S. Government and Agency Securities

Treasury bills are short-term (maturities are 13 to 52 weeks) and are issued at a discount from par. The Treasury awards T-bills to the highest bidders in competitive bid auctions that are held weekly. T-bills also may be purchased by submitting a non-competitive bid and agreeing to pay the average of the competitive bids. T-bills are quoted and sold at a discount from par and carry no interest payments. If a T-bill quote says 4.5 percent, that means a 52-week bill is selling at  $4\frac{1}{2}\%$  less than its \$1,000 par value or \$955. The return on a T-bill is the difference between the price the investor pays when he buys it and the par value at which the bill matures.

Treasury notes are issued in denominations of one thousand to one million dollars that mature in one to ten years. T-notes pay interest every six months and mature at par or can be refunded. If a t-note is refunded, the investor may take a new security with a new interest rate and maturity date or cash payment. T-notes are issued, quoted, and traded in  $\frac{1}{32}^{\text{nd}}$  of a percentage of par. A quote of 97.01 means  $97\frac{1}{32}^{\text{nd}}\%$  of \$1,000 or \$970.3125; 97.02 means  $97\frac{2}{32}^{\text{nd}}\%$  of \$1,000 or \$970.6250; 97.03 means  $97\frac{3}{32}^{\text{nd}}\%$  of \$1,000 or \$970.9375 and so on. That is, :8 indicates  $\frac{8}{32}$  and converts to \$2.50, :16 indicates  $\frac{16}{32}$  and converts to \$5, and :24 indicates  $\frac{24}{32}$  and converts to \$7.50.

Treasury bonds are issued in denominations of one thousand to one million dollars and pay interest every six months. They mature in 10 to 30 years. T-bonds are quoted the same as T-notes.

Treasury receipts are created by brokerage firms who buy U.S. Treasury notes and bonds, put them in trust at a bank and sell receipts against the principal and coupon payments. Treasury receipts are not backed by the full faith and credit of the U.S. government. Each Treasury receipt is priced at a discount from the payment amount.

Housing bonds are issued by both state and local housing authorities. They are backed by mortgage repayments on single-family homes or multi-unit rental property. Frequently, federal subsidies for lower income families plus FHA insurance, VA guarantees and private mortgage insurance adds other protection. New Housing Authority Bonds are no longer issued. They are still available in the secondary market, however, and the U.S. government secures

them. Project Notes (PNs) were once used by housing authorities to finance federal programs for urban renewal, neighborhood development, and low cost housing under an agreement with the Department of Housing and Urban Development, but are no longer issued.

Municipalities issue industrial development revenue bonds (IDRs or IDBs) to build facilities or buy equipment. The safety of an industrial revenue bond depends completely on the credit rating of the company for whom the facility is being built. Since the facility will be leased to a private user, the credit standing of the user is the most important factor in the safety of the bond. The municipality uses the payment from leasing the building to pay the principal and interest on the bonds.

Municipal notes are issued for time frames of 60 days to about one year and are usually available in units of \$25,000. Interest is payable at maturity. Municipalities use this method of financing to pay for current operations in anticipation of ad valorem receipts, revenues or bond issue receipts. Each bond point for a municipal bond represents \$10 and each .01 represents \$.10. That is, .25 = \$2.50, .50 = \$5.00 and .75 = \$7.50. 101.75 converts to \$1017.50.

Federal Farm Credit Banks and Federal Home Loan Banks are the two main U.S. government agencies that issue debt securities. The Federal National Mortgage Association is a publicly held corporation that buys conventional mortgages and mortgages from government agencies, including the Federal Housing Administration, Department of Veterans Affairs and Farmers Home Administration.

When an investor purchases a Government National Mortgage Association certificate (a Ginnie Mae), he receives an interest in pools of FHA insured mortgages or VA or Farmers Home Administration guaranteed mortgages. Since homeowners make their mortgage payments on a monthly basis, payments are “passed through” to investors and include partial principal and partial interest. Additionally, the minimum denomination for Ginnie Maes is \$25,000 and they are fully backed by the federal government. Investors in Ginnie Maes do not own any specific mortgage, but receive a proportionate share of the entire cash flow created by the pool. This is called an undivided interest in the pool. The cash flow is passed through to the security holder in multi-payments of interest, principal, and often prepayments of mortgages that include home sales and refinances.

Stock for the Federal Home Loan Mortgage Corporation (Freddie Mac) is traded on the NYSE. Freddie Mac is a public corporation created to promote the development of a nationwide secondary mortgage market. Freddie Mac buys residential mortgages, pools them, and packages them to sell to investors. The homebuyers' interest and principal payments are passed through to the investors on a monthly basis. Both the federal and state governments tax income from Freddie Macs.

The Federal National Mortgage Association (Fannie Mae) is a publicly held corporation whose stocks trade on the NYSE. Fannie Mae buys conventional and insured mortgages from agencies such as the FHA and VA. These securities are pass-through securities and are backed by the general credit of the FNMA, not the U.S. government. The federal, state, and local governments tax interest from Fannie Maes. Fannie Mae mortgage backed bonds are subordinated to Fannie Mae unsecured bonds with regard to the payment of interest and principal.

The Student Loan Marketing Association provides money to banks, savings and loan associations, educational institutions, and other lenders who participate in the PLUS loan program, the federal Guaranteed Student Loan Program, the Health Education Assistance Loan Program, and supplemental loan programs for students. Sallie Mae is owned by its investors and its shares trade on the New York Stock Exchange. It assists in financing student loans either as a direct lender or as a source of funds to agencies or other lenders.

The main issuers of mortgage-backed securities include Fannie Mae (FNMA), Freddie Mac, and Ginnie Mae (GNMA). Their risk includes sensitivity to interest rates and inflation. Ginnie Maes are safe because they are backed by the full faith and credit of the U.S. government. Freddie Macs have adequate collateral because they are backed by FHA and VA mortgages and insured conventional mortgages along with certain other guarantees.

Collateralized mortgage obligations (CMOs) by definition are mortgage backed corporate securities. CMOs pool a large number of mortgages, generally single-family homes. The major difference between regular pass-throughs and CMOs is the method of payment. Holders of regular pass-throughs receive multi-payments of interest and principal on a monthly basis. These investors do not receive their entire principal until the last mortgage in the pool has been paid. CMOs, on the other hand, are issued with stated maturities called tranches. Some tranches are short term, some intermediate, and some are long

term. As the principal of the mortgages is being paid, it is used solely for the newest maturity in sequence until each maturity is paid.

CMOs are normally financed with high quality mortgages and carry AAA ratings, but their risks include the varying rate of repayment, the fact that the principal may be received sooner than anticipated (in the case of interest rates falling), or the investor may have to hold onto the CMO longer than planned (in the case of interest rates rising). Some CMOs are difficult to market because their characteristics are complex. Interest from CMOs is taxed at the federal, state and local levels.

Real Estate Mortgage Investment Conduits (REMICs) hold a fixed pool of mortgages and issue multiple classes of interest to investors. REMICs generally finance lower quality mortgages and, therefore, carry a high risk for investors. The multiple classes of interest including regular interest and residual interest are taxed to holders of the interest. A regular interest may be issued in the form of debt or stock. A residual interest is generally variable. All regular interests are treated as debt instruments for Federal income tax purposes. A REMIC is a flow-through instrument.

## The Money Market

Money market instruments give corporations and agencies a way of financing short-term cash requirements. They are fixed-income securities with maturities of one year or **less** and are therefore highly liquid. Generally, money market securities are highly safe because most issuers have high credit ratings. Most money market instruments are issued at a discount and pay no interest.

Money market securities issued by the U.S. government include treasury bills that trade in the secondary market, treasury and agency securities with remaining maturity dates of less than one year, Federal Farm Credit Bank notes and bonds which will mature in one year, FHLB short-term discount notes and interest-bearing notes, Fannie Mae short-term discount notes and selected notes issued by smaller agencies.

Municipalities issue several types of money market instruments. Tax Anticipation Notes (TANs) are generally used by municipalities in anticipation of tax collections. Bond Anticipation Notes (BANs) are generally issued in anticipation of bonds. Revenue Anticipation Notes (RANs) are generally issued in anticipation of revenues, often from the state or federal government.

Corporations and banks issue money market instruments as well. Commercial paper is an unsecured, short-term IOU issued by a corporation. Maturity dates cannot exceed 270 days. Sold to both public and institutional investors, the largest finance company that issues commercial paper is GMAC. Ford and GE are also large issuers of these promissory notes. Generally, commercial paper is issued at a discount with no interest and is the least active secondary trading instrument. The main buyers of commercial paper are non-government agencies, banks, industrial companies, money market funds and pension funds.

A bankers acceptance is used to finance international and domestic import/export businesses. It is a check drawn on a bank by a company and represents the bank's conditional promise to pay the face amount of the note at maturity. A bankers acceptance is always issued at a discount and usually matures in less than three months, but can extend up to 270 days. It is backed by the importer's pledge to pay, the products being imported, and the guarantee of the accepting bank.

Certificates of deposit (CDs) are unsecured time deposits because the bank pledges no collateral for the money being loaned. CDs were introduced to allow banks to compete with other money market instruments. CDs pay no interest until maturity date, but are issued for a specific time period and face value plus interest is paid on the preset date of maturity. Negotiable CDs are used by corporations and have face values of \$100,000 or more.

Other money market instruments used by corporations and banks may include repurchase agreements, reverse repurchase agreements, etc.

Each bond point for a corporate bond represents \$10 and the fractions are in one-eighths. That is,  $\frac{1}{2} = \$5$ ,  $\frac{1}{4} = \$2.50$  and  $\frac{1}{8} = \$1.25$ .  $92\frac{1}{2}$  converts to \$925.00.

## Interest Rates

Prime rate is defined as the interest rate that institutions charge their most creditworthy customers, usually large corporations. Prime rate generally indicates whether money is “tight” (prime rate is high) or “easy” (prime rate is low).

The large money center banks in New York, Chicago and San Francisco almost always have more loan demand than they have money to loan. It is the banks outside the major money centers that have excess reserves and can lend money to the money center banks. This is called federal funds lending and carries the interest rate called federal funds rate.

Federal funds rate is the rate federal banks charge each other for overnight loans of one million dollars or more. It is listed in the daily newspapers and is generally considered an indicator of the direction of short-term interest rates.

The discount rate is the rate the New York Federal Reserve Bank charges for short-term loans to banks that are members of the reserve. The broker loan rate is the interest rate banks charge broker/dealers on money that is borrowed to lend to margin account customers. Another name for the broker loan rate is the call loan rate or the call money rate. This is usually a percentage point or so above other short-term rates and is callable with a 24 hours notice.

## Eurodollars and Foreign Currency Markets

Eurocurrency is really a misnomer and does not mean Europe only. Eurocurrency refers to any funds deposited in any bank which are denominated in a currency different from the bank's domestic currency. Pesos or francs deposited in an U.S. bank are considered Eurocurrency. U.S. dollars deposited in foreign banks are called Eurocurrency and are considered money market instruments since the funds are a source of short term money for corporations world wide.

The Interbank Market handles and transacts business in trading, lending, and consolidating foreign currency deposits. It is an unregulated and decentralized market. The U.S. Treasury department buys and sells U.S. currency in an effort to influence the dollar's exchange rate in the interbank market. As the supply of U.S. currency in the market increases, the price should drop and as the supply decreases, the price should rise. The interbank market functions efficiently as a telephone/telex market for spot and forward trades. Spot trades settle and are delivered in one or two business days. Forward trades settle in more than two business days and delivery is set for 1 to 18 months. Risks of foreign currency speculation include the fact that the market is unregulated and decentralized and changes in a country's economic, governmental and social policies could dramatically affect the currency's value.

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