7 Bonds and Stocks

**Financial Markets**

A financial market is a mechanism used for trading securities. Financial markets, as is true for other types of market, contain these elements.

* The item traded
* The Buyer
* The Seller
* The Individuals or Institutions that organize the market

Because the capital is a significant source of long-term financing, and because the financial markets determine the cost of that capital, activity within the financial markets is of interest to capital providers and users.

**The providers of capital are investors looking for a way to use their money in order to generate income. The users of capital are corporations that need additional capital to finance their operations and that are willing to pay for the use of that capital. The financial markets match the providers of capital with the users of capital.**

**Financial Assets**

In financial markets, the items traded are financial assets, or financial claims, known collectively as securities. Financial markets are made up of money markets and capital markets.

Examples of securities include stocks, bonds, and Treasury bills. Different markets exist for different types of securities. Buyers and Sellers may be individuals, corporations or any other type of legal entity. Examples of individuals or institutions that organize the securities market include the New York Stock Exchange (NYSE), NASDAQ, and the Chicago Board of Trade.

**Money Markets are markets in which short-term securities are traded. “Short Term” means the securities will mature in one year or less. Capital Markets are markets in which long-term securities are traded. “Long Term” means the securities will mature in more than one year**.

Primary Markets – When First sold and Secondary Markets – any sale after the primary sale.

**Financial Market Cash Flow**

Financial markets match the providers of capital with the users of capital. In addition, the financial markets provide liquidity by establishing a pricing mechanism for securities and creating a forum in which those securities are traded. The different financial markets provide both the investment options for investors and a means for corporations, governments, and other entities to raise capital at a relatively reasonable cost. Generally, the pricing mechanism prices risky enterprises higher than safe ones, assuring investors in risky financial assets the prospect of higher expected returns.

**Demand for an Supply of Capital**

**The providers of capital in financial markets (investors) want to find a way to use their money to generate income. The users of capital (typically corporations and the government) need additional capital to finance their business operations and are willing to pay for the use of the capital. Buyers**

**The typical users of capital are corporations (both domestic and international) and the government. Their demand for funds takes the form of mortgages; corporate and foreign bonds; common and preferred stock; short-term business borrowing; consumer credit, bank loans, other loans, and advances; and federal, foreign, state, and local government debt. Borrowers**

**The supply of capital comes primarily from the following types of providers: individual investors, insurers, pension funds, thrift institutions, investment companies, commercial banks, and business corporations.**

Financial markets can be subdivided into primary markets and secondary markets. Whether a market is primary or secondary depends on who is selling the particular security.

**Primary Markets**

Primary markets provide corporations with the ability to bring additional cash into the organization through, **the sale of new shares of stock or by borrowing and issuing new bonds to investors.**

Primary Market: A mechanism in which new securities are sold, with the proceeds going directly to the issuer.

**Primary Market Structures**

It is critical for the financial manager to understand the characteristics of the four structures of primary markets because each structure provides the corporation with a different method and cot of bringing its assets to the providers of capital.

* **Direct search – direct search market participants must find interested trading partners by themselves. Search on your own (for sale by owner)**
* **Broker – Broker market participants employ agents to conduct the search for trading partners.**
* **Dealer – Dealer market participants complete their transactions by trading with dealers who hold themselves out as willing to sell.**
* **Auction – Auction market participants transact directly against the order of other investors by communicating through a single, centralized intermediary. (eliminates search for best price)**

The structure of the market in which securities trade is determined mainly by the relative profitability for market professionals of the alternative structures. No broker, dealer, or exchange can remain in business if it is unable to cover its costs and earn a competitive return on capital.

**Secondary Markets**

**Secondary markets are mechanisms for investors to buy and sell previously issued securities. No proceeds go to the original issuer (like a used car, the dealer does not make money when you sell your car. Although corporations are directly involved only in the primary markets, the secondary markets are critical to them because the liquidity of these markets means that buyers and sellers know they can resell their securities whenever desired. This liquidity makes the markets more attractive to buyers and sellers. It is also important for financial managers to understand the secondary markets because investing excess corporate funds will likely be done using the secondary markets**.

Previously issued securities trade on organized exchanges under auction market techniques and in over the counter (OTC) dealer markets. The equity securities of most large US corporations trade on organized exchanges such as the NYSE or the American Stock Exchange. Trading on an organized exchange differs from trading in the OTC dealer markets in these ways.

* All trading in a given stock occurs at a single place on an exchange floor. Brokers seeking to execute buy and sell orders on behalf of their clients know exactly where to go on the exchange floor to physically execute the trade. The system of trading stocks is known as the open outcry system.
* Transaction prices are broadcast to the public.

Before computer-based trading networks existed, securities that were not traded on an exchange floor were literally bought and sold over the counter in the front offices of securities firms. The term “over the count” (OTC) now refers to stocks that are not listed for trading on an organized exchange. Dealer markets are typically traded OTC, including those markets for municipal and corporate bonds Treasury securities, and mortgage-backed securities.

Dealer markets now use online computer networks, such as the NASDAQ system, for completing trades. Most securities trading occurs in dealer markets. Both the largest financial market (the current market) and the second largest market (the Treasury bond market) are dealer markets.

Whether a secondary market functions well depends on its market depth and breadth. A market with depth and breadth provides liquidity for investors. Markets that display the greatest liquidity include the NYSE, the current markets, and the US Treasury markets. Market depth is the ability of the market to handle a large number of securities transactions without a significant effect on prices. A market has depth if there are enough market orders both above and below the price at which a security is trading to offset any imbalances that would cause substantial price changes. Prompt communication of quotations and prompt execution of orders are preconditions for market depth.

Market Breadth is the percentage of the overall market that is participating in the market’s up or down move. The market must have enough volume to be able to measure market breadth. Looking at this indicator allows investors to examine price trends of a diverse range of stocks rather than focusing on the large cap stocks (stocks of large corporations) that have the greatest influence on market indices. Even if only a few large cap stocks are going up in value, it will boost the major averages, giving the (potentially incorrect) impression that the market is very strong. However, if the majority of the lesser-known medium and small cap stocks are falling simultaneously, that could indicate that the market will decline in the near term.

**Part 2 - Classifications of Bonds**

Bonds can be purchased from various sources and are classified in relation to their source.

**Bonds fall into one of four classifications:**

* **Federal debt**
* **Corporate bonds**
* **State and local debt**
* **International bonds**

**Federal Debt**

One type of federal debt is United States Treasury debt. Treasury debt carries the guarantee of the US government for payment of principal and interest. Treasury debt includes these types of securities:

* **Treasury bills (also called T-bills) have maturities of one year or less**, are sold at a discount from face value, and are repaid at face value. Sold in Money Markets
* **Treasury notes (also called T-notes) range in maturity from tow to ten years**, have a stated coupon rate (interest rate), and pay coupons twice a year. Capital Market
* **Treasury bonds (also called T-bonds) have a maturity of thirty years**, have a stated coupon rate, and pay coupons twice a year.
* **Treasury inflation protected securities (TIPS) are securities whose principal is tied to inflation-bond premiums specifically, the Consumer Price Index**. Therefore**, if the inflation rate increases, the principal increases, and if the inflation rate decreases, the principal decreases**. At maturity, the holder is said the greater of the inflation-adjusted principal or the original principal. Coupons are paid twice a year. The coupon rate is a fixed percentage of the principal, and therefore it also increases or decreases with inflation. TIPS are sold with maturities of five, ten, or twenty years.

Treasury securities are offered directly from the Treasury on a book-entry basis. Book entry means that these securities exist only as electronic records in computers. All securities issued by the Treasury Department have been book entry since 1986; the only place paper securities are available is the secondary market. All Treasury securities have a minimum investment of $100.

**Treasury securities have lower interest rates than corporate or agency bonds or mortgage securities of comparable maturity because they are guaranteed by the United States government for payment of principal and interest and because there is virtually no risk of default. Investors do not have to pay state or local income taxes on the interest earned on Treasury securities**. But you do have to pay federal taxes.

Federal debt also includes debt issued by both federal agencies and government sponsored enterprises (GSEs**). A GSE may issue debt for several reasons, such as to alleviate economic recessions; correct market imperfections that lead to misallocation of resources; redistribute wealth; and channel credit into special sectors of the economy, such as housing, agriculture, education, and foreign trade**. As a result of falling home prices and mortgage defaults in 2008, two of the largest GSEs that purchase mortgage backed securities, the Federal National Mortgage Corporation (Freddie Mac), were placed under direct government control, GSE securities normally yield more than Treasury securities because the federal government is not legally required to guarantee GSE debt, and therefore GSE debt carries a high risk than Treasury debt.

**Corporate Bonds**

A corporate bond is an agreement between a corporation (the borrower) and an investor (the lender). Corporate bonds are usually issued by large corporations. The majority of corporate bond issues can be classified as utility bonds, industrial bonds, and bond and finance company bonds.

Industrial bonds are bonds issued by industrial corporations, a term that encompasses all business corporations other than railroad, public utility financial, and real estate corporations. Therefore, “industrial corporations” as a classification includes manufacturing, merchandising and service corporations.

The interest paid on corporate bonds is fully taxable to the recipient. Insurance companies, banks, pension plans, corporations and professional money managers are the principal buyers of corporate bonds.

**State and Local Debt**

The debt securities issued by state and local governments and their agencies are called municipal bonds. The interest income received from municipal bonds is not subject to federal taxation and is also frequently exempt from state and local taxes. For example, residents of New York State are exempt from paying state and local taxes on the interest earned on their New York State bonds. This tax-exempt feature permits state and local governments to borrow at interest rates below those available to other types of borrowers, whose interest payments on debt represent taxable income to investors.

Because of her income tax rate Carla is indifferent between the purchase of a municipal bond with a 4.2% coupon rate and a Corporate bond with a 6% coupon rate. If both bonds have otherwise equivalent characteristics and risk factors Carla’s income tax rate is:

4.2% Municipal

6.0% Corporate

42 / 60 = 70% Subtract 70 from 1 the tax rate is 30%

In addition to tax status there are other ways in which municipal bonds differ from corporate bonds. This is particularly true with respect to security or credit quality determination**. General obligation bonds are municipal debt instruments secured by the full faith, credit, and taxing authority of the issuing state or municipality; therefore, they offer a high level of security for the investor. These bonds are repayable from the general revenues provided by collectible taxes and from other available revenues**.

**Revenue bonds are municipal debt instruments payable entirely from revenue received from the users or beneficiaries of the projects financed by the bond proceeds. They involve higher risk than general obligation bonds because of the possibility that the projects financed may not bring in enough revenue to pay bondholders.** Examples include utility revenue bonds; mortgage-backed revenue bonds; and special-tax bonds used to finance the construction of projects such as state highways, bridges, ports, airports; parking garages, university dormitories, or hospitals. The revenue for meeting both interest and principal payments on the bond comes from the fees and user charges for the services provided.

**International Bonds**

The two most common classifications of international bonds are Eurobonds and foreign bonds.

**Eurobonds are long-term debt instruments that are denominated in US dollars or another currency and that are offered and issued outside the issuer’s country of origin. The currency in which a Eurobond is issued is reflected in its name.** For example, **Eurobonds issued in US dollars are called Eurodollar bonds, those issued in Japanese yen are called Euroyen bonds, and those issued in euros are called Euroeuro bonds.**

**Eurobonds typically pay interest annually (except in the case of emerging market bonds, which primarily pay semi-annually), have maturities of three to seven years and are usually unsecured.**

Issuers of Eurobonds include domestic and international banks and corporations, supranationals [multinational organizations such as the World Bank and the International Monetary Fund (IMF) that are usually formed for providing financial assistance to less developed countries], and governments of countries with unstable economies.

**A foreign bond is a debt instrument issued by a corporation or government outside its own country. Foreign bonds are denominated either in the currency of the country where sales are expected to occur or in a popular currency that will attract foreign investors**.

Investing in any international bond is subject to certain risks, such as currency fluctuation and social and political changes, that are not present or are of less concern when investing in a country with a stable currency and political system. **The coupon rate on these bonds reflects the additional risks in investing in international bonds**.

**Bond Characteristics**

Investments in long-term bonds represented 68% of the invested assets in the property-casualty insurance industry in 2008. Because bonds and similar fixed-maturity investments represent such a large percentage of an insurer’s invested assets, insurance professionals must understand basic bond components, optional features, and bond collateral.

**Bond: A long-term debt instrument that requires the issuer to pay a set annual rate of interest and to repay the borrowed sum on a specified date**.

**Basic Bond Components**

**A bond is created by an indenture agreement. The terms of an indenture agreement include these basic components. Indenture agreement – a legal document that details the terms of a bond.**

* **Maturity date, typically five to thirty years from the date of purchase. The date on which a bond’s principal or par value becomes payable to the bondholder.**
* **Principal (face value, or par value) Face Value a bond’s original value and the amount that will be paid at the bond maturity date. Principal – in finance, the amount borrowed under a loan**
* **Interest rate (coupon rate)**
* **Rights and duties of the issuer and the buyer(s) of the bond**

Bonds are conventionally split into units, each with a face value of $1,000. Therefore, a $500,000 bond would typically comprise 500 units. The price of a bond is normally quoted as a percentage of its face value. For example, 94.5 would represent $945 per $1,000 (0.945 X $1,000 = $945). For the $500,000 bond, the price could be calculated either by taking the percentage of the total value (0.945 X $500,000 = $472,500) or by multiplying the price per unit by the number of units ($945 X 500 = $472,500).

The coupon rate of a bond can be determined by dividing the annual coupon by the face value of the bond. For example, a $1,000 bond with a $40 coupon has a coupon rate of 4% ($40 X $1,000 = 0.04)

**A bond’s rate of return for a specified period is the percentage of the value of the bond earned for that specific period, represented by the total of the coupon payments plus any capital gain or loss divided by the purchase price. For example, a $1,000 par value bond purchased for $1,000 with a $40 coupon and a $50 capital gain over a specific period had a 9% rate of return over that period [($40 + $50) ÷ $1,000 = 0.09]**

The indenture agreement also defines the rights and duties of the issuer and buyer(s) o the bond, including the fact that corporate bondholders are creditors, not company owners (shareholders), and therefore do not share in the company’s profits and losses. However, as creditors, they must be paid before the company’s shareholders receive dividends.

**Optional Features**

Bonds that consist of just the basic components are called straight bonds. However, in addition to the basic components, a bond indenture agreement can contain optional features that either enhance or restrict the bondholder’s legal rights. Accordingly, any of these features can make a particular bond more or less attractive as an investment. Bonds can have any of these additional features:

**Convertibility (convertible bonds) – A debt instrument that gives the holder the option to convert the bond into another security (generally common stock) of the issuing company at a specified price, within given time, and under stated terms. Typically, the potential for profit is greater with a convertible bond than with a nonconvertible bond because the convertible bond’s value is support by both its basic bond components (maturity date, principal, and interest rate) and its stock conversion value. If a bond has an option to convert to common stock at a set price, the option has value because the stock’s market price might rise above the conversion price, providing the bondholder with the opportunity to convert the bond and realize a profit immediately selling the stock**. This is a positive feature

**Guaranteed Bond** – **a debt instrument guaranteed by an entity other than the issuer**. The guarantor of a guaranteed bond is often the parent of an issuing subsidiary. If the guarantor is more financially stable than the issuer, then having this guarantee in place will tend to increase the value of the bond. Interest rate will be less

**Floating rate bond** – **a debt instrument that pays interest at a rate that is indexed to the rates on US Treasury securities or other money market instruments**. Bonds usually have a fixed coupon rate. However, companies may also issue floating-rate bonds (also called adjustable rate or variable rate bonds). Although usually issued by financial companies (such as banks), floating-rate bonds have also been issued by industrial and public utility company. Floating rate debt is most popular with issuing companies when interest rates are expected to decline because the issuer will not be locked into the current rate and can take advantage of any lower rates that materialize.

**Callable bonds** are debt instruments that give the issuer the right to pay off the bond before maturity. From the investor’s prospective the call provision limits the rate of return that can be obtained over the life of the bond if interest rates fall, because the issuer is likely to “call” the bond to refinance the debt at lower interest rates. To provide some protection for investors, callable bonds usually cannot be called during the first few years of issue. These bonds typically have a higher return than straight bonds of equal credit rating and maturity. Restrictive, issuer can recall the bond at any time.

**Zero-Coupon bonds** – **a corporate bond that does not pay periodic interest income**. Zero-coupon bonds are debt instruments that are redeemed at par at maturity. These bonds are sold to the investor at a value below the par value-that is, they sell at a discount. The difference between the discounted sale price and the par value redemption price provides a compounded fixed return amount over the life of the bond. By compounding annual returns, zero-coupon bonds avoid the reinvestment risk that characterizes straight bonds. The risk is that coupon payments received during the life of a bond cannot be reinvested for a return at least equal to the coupon rate on the bond.

**Sinking fund provision** – **a provision that requires a bond issuer to set aside money at periodic intervals for the specific purpose of repaying a portion of its existing bonds each year**. Some bonds contain a sinking fund provision. By regularly paying off part of its debt, the issuer will have much less to pay at the bond’s maturity date. Sinking fund provisions usually allow the issuer to repay its bonds periodically at a specified sinking fun price-typically the bond’s par value. Sinking funds, which establish a duty for the bond issuer, protect investors by requiring the repayment of principal at periodic intervals.

**Bond Collateral**

Secured Bond – a debt instrument that is secured by specific assets and has priority over the funds received in the liquidation of those assets.

Debenture bond – a debt instrument that is an unsecured general obligation of the issuing corporation

Asset-backed security – a financial instrument collateralized by a pool of loans, leases or other receivables.

Mortgage-backed security – A financial instrument collateralized by a pool of mortgages

**Some bonds are collateralized, which means that they are backed by specific assets of the issuer. Collateralized bonds are called secured bonds. In a bankruptcy claim or a default situation, secured bonds are paid before unsecured debt. To the extent that there are insufficient assets to cover the entire secured bond amount, the balance is owed by the debtor and is considered part of the remaining unsecured debt. Unsecured bonds are called debenture bonds.**

**Asset-backed securities can be crated for auto loans, credit card receivables, home equity loans, or student loans. Interest and principal repayments on the underlying loans or receivables are passed directly to the investors after these payments pass through the entity, usually a trust, issuing the security.**

**The structure of mortgage-backed securities is similar to that of asset-backed securities. However, mortgage-backed securities have longer maturities than asset-backed securities because they are typically backed by fifteen-year of thirty-year mortgages. In addition, most first mortgages are guaranteed by the United States government, and therefore mortgage-backed securities have a lower credit risk than asset-backed securities**.

**Determinants of a Bond’s Yield of Maturity and Price**

The marketplace sets a bond’s current price and yield to maturity. In making these determination, the marketplace considers a number of risk factors, including credit risk, liquidity risk, and term to maturity.

The marketplace determines the yield to maturity of a bond. Yield to maturity (YTM) – a measure of the total rate of return a bondholder will earn over the life of the bond if it is held to maturity.

The yield demanded by investors is based on a number of risk factors specific to that bond, including these:

* Credit risk
* Liquidity risk
* Term to maturity

Additional factors, such as inflation risk and the real rate of return demanded by investors, also determines a bond’s yield to maturity price.

**Credit Risk**

Credit risk – the risk that customers or other creditors will fail to make promised payments as they come due.

Not surprisingly, the degree of credit risk (also known as default risk) associated with a bond is of critical importance to investors. Bonds issued by the US Treasury are considered to have no default risk, s the federal government has the ability to raise funds through taxes or printing of money to repay its obligations. US treasury bonds are the default risk benchmark against which all other bonds are compared.

The question then becomes, “How much additional return (risk premium) will the marketplace require for bonds that have default risk?”  **The investor would need to consider the issuer’s operations and present and projected financial position, including cash flow and short-term assets available to make required interest payments and repayment of principal on the bonds**.

Standard & Poor’s (S&P) and Moody’s are the two major bond rating agencies that supply bond ratings for investors. In this function, they act as investment advisory firms. In order for a bond to obtain a rating for a specific issuance, the issuing company must pay a rating agency to complete an assessment. The rating agencies consider the issuer’s expected liquidity, profitability and debt load for the term of the bond.

Triple A rating is the highest grade issued by S&P (AAA) and Moody’s (Aaa). It is reserved for bonds with the lowest degree of credit risk. In general AA or Aa ratings are assigned more frequently that a triple-A rating.

Triple B – BBB (S&P) or Baa (Moody’s) or better rating is required for consideration of a bond as an investment grade bond. Investment grade bond – a bond issued that receives one of the top for investment quality ratings from two main bond rating agencies Moody’s and Standard & Poor’s. A bond that has a BB/Ba rating or lower is considered a speculative investment and may be referred to as a junk Bond.

Junk bond- a bond that receives a BB/Ba rating or lower from one or both to the two main rating agencies Moody’s and Standard & Poor’s.

D rating, the lowest grade by S&P and Moody’s, indicates that the issuer is in default. Default occurs when interest and/or principal payments are past due.

Because an issuer’s financial strength can improve or deteriorate during the life of a bond, rating agencies monitor the issuer’s operations and financial position throughout the term of the bond. If a rating agency determines that a bond’s credit risk has decreased, the agency may raise the letter grade assigned to an issue. In contract, if the perceived credit risk of an issuer has increased the rating agency may lower the letter grade. As the rating of an issue is lowered, the interest spread over Treasury bonds with similar maturity generally increases. This increase in risk premium demanded by investors drives the market price of the bond lower.

**Liquidity Risk**

Liquidity risk – the risk that an asset cannot be sold on short notice without incurring a loss.

A liquid asset is one that can be sold quickly, at a predictable price, and with minimal transaction costs. Illiquid assets sell at a discount when immediate cash is needed because of the urgency of the transaction. All other things held equal, investors will generally prefer a liquid asset to an illiquid asset.

Bonds that are considered liquid generally have a high transaction volume in the marketplace. Investors demand a higher rate of return for assuming liquidity risk. The additional yield requirement is referred to as liquidity premium.

The liquidity premium on a particular bond reflects it liquidity relative to similar duration issues. US Treasury bonds are the most liquid long-term bonds and carry not transaction costs. US bonds serve as the liquidity benchmark against which all other bonds (municipal and corporate bonds, for example) are compared. Large corporate bonds that are actively traded on organized exchanges carry a small liquidity risk premium. In contrast, smaller bond issuances that do not trade on a centralized exchange have a thin volume that would carry a greater liquidity premium.

**Term of Maturity**

Term structure – the effect on a bond’s price to the length of time to maturity.

Maturity premium – For a given security, the difference in yield between one term of maturity and another.

Bonds that have the same level of credit risk, liquidity, tax treatment, and terms may have different interest rates due to differing time until maturity. The term structure of interest rates explains the relationship between interest rates and the term to maturity of a bond. A yield curve is frequently used to provide a visual depiction of the term structure of interest rates at a point in time for a specific category of bonds. The yield cure for a category of securities can shift over time.

A yield curve can have one of these three shapes: What is expected from now to maturity

* **Upward sloping – with long-term interest rates above short-term interest rates. A curve is more likely to have this shape when short-term interest rates are low. This is the most common yield shape. More money for longer term**
* Flat, with short- and long-term interest rates equal.
* Downward sloping - with long-term interest rates below short-term interest rates. A curve is more likely to be downward sloping, or inverted, when short-term interest rates are high. This happens when they expect the interest rates to go up.

The difference in yield for different maturities of a bond category is known as the maturity premium. (discount rate)

For upward sloping yield curves, the maturity premium is positive, meaning that investors require a higher interest rate on longer-term securities. For flat yield curve, the maturity premium is zero. For downward sloping yield curves, the maturity premium is negative, as investors require a lower rate of return on longer-term securities.

**Yield to Maturity**

The yield to maturity for a bond is the required rate of return by the marketplace; it is also referred to as the discount rate. The yield to maturity is the most accurate representation of a bond’s actual interest rate at any single point in time and can vary over the life of a bond.

**A bond’s yield to maturity is influenced by three main factors:**

* **Real rate of return** – This is the interest rate required by bondholders for putting their funds into a bond and represents the growth of the investor’s purchasing power over the term of the bond.
* **Inflation premium** - Investors require this premium in order to offset the decrease in purchasing power associated with inflation.
* **Risk premium** – this premium compensates bondholders for credit risk and liquidity risk, as well as any maturity premium associated with a specific bond.

Additional characteristics of a bond, such a convertibility, and callability, also influence its yield to maturity. When premiums increate rates decrease.

**Bond Pricing**

The market price of a bond fluctuates over its life based on factors that influence yield to maturity, including the real rate of return, inflation premium, and risk premium. Like all financial instruments, the market value of a bond equals the present value of future cash flows.

The yield to maturity and the market price of bonds are negatively related. As the yield to maturity (discount) rate of a bond increases, its market price falls. Alternatively, as the yield to maturity (discount) rate of a bond decreases, its market price rises. Bond prices always go opposite of interest rate, if interest drops price increases.

8 years to Maturity, sold at 7% now, on the market at 5% with $1,000 face value what is the market value of this bond? Market value of a bond = PV of Future cash flows

Using two Tables - Coupon rate of $70 and Present Value of $1,000

8 periods at %5 from the PV of an annuity Table Coupon Rate $70 X 6.4632 = $452.42

Using the PV of $1 table 8 periods 5% rate $1,000 X .6768 = $676.80

Total Value $452.42 + $676.80 = $1,129.22 Interest rate dropped so value of bond increased

**Characteristics of Stocks**

Unlike bonds stocks represent ownership claims in the firm. Bonds and other debt securities represent creditor claims and consequently have priority over ownership claims. Stocks represent residual claims to the equity of the firm after creditor claims have been satisfied. As an investment, therefore, stocks involve a greater degree of risk, but also an opportunity for greater returns.

Once issued, corporate stocks continue to exist unless the firm goes out of business or merges into another corporation. Because of the amount of equity securities already outstanding, most stock trading occurs in the secondary market. New issues of stock constitute a small amount in relation to the total amount of stock outstanding. The volume of secondary market activity supports several highly organized exchanges and over-the-counter markets.

Two important classes of corporate stock-preferred stock and common stock- can be differentiated by their relative priorities in dividend payments and in claims on the residual assets of a corporation.

**Preferred Stock**

Preferred Stock – Stock that is generally nonvoting but that has priority over common stock, usually regarding dividends and capital distribution if the corporation ends its existence.

**A preferred stock is a security that represents ownership in a corporation and that takes precedence over common stock regarding dividend and liquidation payments, but that usually does not afford voting rights. The dividends of preferred stocks must be fully paid before any dividends can be paid on the common stock**. The payment of fixed dividends is not legally binding and must be voted on an approved by the board of directors. Preferred stock dividends are not tax-deductible expenses for the issuing company. However, the issuing corporation makes no contractual commitment to pay a preferred dividend, and omission of a preferred dividend is not considered a default.

Given the possibility that the board of directors could vote to omit the preferred dividend, it is important to determine whether the preferred stock is cumulative or noncumulative.

Cumulative preferred stock – A security that gives the holder the right to receive accrued unpaid dividends before any dividends can be paid to the common stockholders.

Noncumulative preferred stock – A security that does not give the holder the right to receive accrued unpaid dividends.

**In the case of cumulative preferred stock, the holder has the right to receive accrued unpaid dividends before any dividends can be paid to the common stockholders. In contrast, noncumulative preferred stock does not give the holder the right to received accrued unpaid dividends. If a dividend is not declared in any particular year, no accrued dividend is carried forward, and it is therefore not necessary to pay these unpaid dividends before paying dividends on the common stock. However, noncumulative preferred stock still has precedence over common stock if a dividend is declared. It is still not possible to pay dividends to common stockholders without first paying dividends to noncumulative preferred stockholders.**

ferred stock is a type of preferred stock that allows the holder to convert it into a stated number of common shares of the issuing company-similar to convertible bonds. This stock has a stated dividend rate, as does a regular preferred stock.

**The advantage of a convertible preferred stock is that the price should increase when the price of the common stock rises above the par value of the preferred stock. Also, if the common stock declines substantially, the convertible preferred stock will probably not decline as much because the stated dividend is a price stabilizer**. Therefore, convertible preferred stock enjoys the upside potential of common stock and the dividend protection of preferred stock.

Unlike interest payments on bonds, preferred stock dividends are not tax-deductible expenses for the issuing company.

**Common Stock**

Common stock – An ownership interest in a corporation that gives stockowners certain rights and privileges, such as the right to vote on important corporate matters and to receive dividends.

A common stock is a security that represents ownership in a corporation and that usually gives the owner certain voting rights but that has the lowest priority regarding dividend payment and liquidation**. Dividends on common stock are not fixed. If a company’s earnings increase consistently, the dividend usually also increases**. **Common stock dividends are not tax deductible.** Although common stock prices are often very volatile, overall, they have had an above-average expected return over the long term.

**Understanding Common Stock Prices**

Understanding why stock prices fluctuate from day to day, and even from hour to hour is important for insurers because these fluctuations affect an insurer’s stock investments and therefore the insurer’s net worth.

Because stocks represent residual claims on the issuing organization’s assets, their value depends on the firm’s projected earnings, discounted to the present value by the return required by investors. Changes in interest rates on bonds, which are an alternative investment to stocks, account for some stock price fluctuations. However, a firm’s projected earnings, its relative price to earnings ratio, potential takeover and breakup value, dividend payout ratio, and quality of management also influence the price of its common stock.

**Stock Price Volatility Theories**

Despite the breadth and depth of the secondary market for major corporate stocks, and the amount of information available concerning these stocks, their prices can fluctuate sharply.

**One theory, for an economic perspective, suggests that the fluctuation in the price of common stock are caused by the supply and demand position of the stock in the marketplace.**

* Investors may believe that the prices of certain stocks will move positively or negatively with the overall economic environment.
* The stock price of an individual company tends to move in the same direction as the prices of the stocks of other companies in the same industry.
* The performance of an individual company is also an important factor.

**The financial theory of stock price volatility is the hypothesis that the price of any investment, including stock, equals the discounted present value of the future ash flows it generates. In the specific case of stock, the price is the present value of the dividend stream plus the value of the stock at the end of a holding period**. Any change that may affect the dividend a company pays to shareholders is likely to result in a change in the stock price. Your guessing on a few items.

Stock prices may also change a s a result of investors’ anticipation of future results and a company’s success or failure in meeting those expectations.

Other factors that may influence stock price volatility include the percentage of the stock owned by institutional investors, the potential for a corporate takeover, and computerized programs that compare option prices and futures prices to current stock market prices in order to guide investment decisions.

Systematic approaches to stock pricing include fundamental analysis, technical analysis, and the efficient market hypothesis.

**Fundamental Analysis**

**Fundamental Analysis – A method used to determine the price of a stock by analyzing data that are fundamental to the company, such as expected growth, dividend payouts, risk, and interest rates**

Dividend payout ratio – Dividends paid divided by earnings.

**The key determinant of a stock’s price is the method of fundamental analysis is the extent to which these variables exceed or fall below the S&P’s averages:**

* **Expected growth rate of earnings**
* **Sales stability**
* **Dividend payout ratio**
* **Financial leverage**
* **Institutional stock ownership**

Investors are usually willing to pay a higher price per share if a company is expected to grow over time, if the company’s sales are stable, if the stock’s dividend is higher than average, or if the company has low financial leverage with low borrowing costs. Significant institutional ownership of a company’s stock is usually considered a positive factor because institutional investors are perceived to be sophisticated investors with expertise and resources to efficiently monitor the companies whose stock they own.

Other factors that are important in fundamental analysis include the potential effects of foreign competition; foreign exchange rates for companies that have international operations or significant exports or imports; cash flow; and any change in industry factors, such as competition from a new technology.

**Technical Analysis**

**Technical analysis is a method of determining stock prices by trying to detect patterns in market activity statistics, past prices, and market volume.** Technical analysts do not try to measure the intrinsic value of the stock they are analyzing. **They believe the historical performance of the stock will repeat itself in predictable trends, and patterns based on prior results**.

**Efficient Market Hypothesis**

**The efficient market hypothesis asserts that stock prices reflect the expectations of all market participants and that no individual investor has superior knowledge. An efficient market is on in which new information is quickly and accurately reflected in the price of the stock.** In this hypothesis, investors will use new information immediately and the stock price will react immediately.

There are three forms of the efficient market hypothesis:

* Weak form efficiency
* Semi-strong form efficiency
* Strong form efficiency

**Weak form efficiency asserts that the current stock price reflects all historical information about the stock’s price fluctuations. This hypothesis assumes that successive changes in a stock’s price are independent of each other, or that stock price movements are random. This implication is that the analysis of historical price relationships, or the nature of technical research, is of no value in forecasting future stock prices**, and any information about past price fluctuations will not assist an investor to earn a high profit. Acceptance of the weak form of the efficient market hypothesis is therefore a rejection of technical analysis.

**Semi-strong form efficiency asserts that the current stock price reflects not only all historical data, but also current information about the stock**.

**The most controversial form of the efficient market hypothesis is the strong form efficiency, which asserts that stock prices reflect not only historical information and current pubic information, but also insider information that might be available only to insiders or experts**.

**The efficient market hypothesis has broad and powerful implications for investors, including insurer financial managers. If they accept the weak form, investors would not rely on technical analysis. If they accept the semi-strong form, they would not rely on either the technical analysis or fundamental analysis. If they accept the strong form, they would be likely to look to an unmanaged or indexed to a market reference.** The reliance that financial managers place on the various forms of market efficiency affects both the type and amount of analysis they are prepared to do to determine the price they are willing to pay for a stock.

**Annual Rate of Return for a Security**

The investment of policyholder funds is a distinguishing feature of the insurance industry. Because stocks and bonds represent such a significant percentage of insurer’s invested assets, it is important for insurance professionals to understand the returns these investments provide.

Annual Return Components

There are two components to the annual return on a bond or a stock:

* Periodic payments in the form of bond interest or stock dividends
* A capital gain or loss based on the change in the value of the bond or stock from the beginning of the year to the end of the year.

The annual rate of return for a bond or stock is the sum of the yield and the capital gain or loss expressed in percentage terms.

**Annual Rate of Return for a Bond**

**The annual rate of return for a bond is calculated by summing the coupon (interest) payments and the capital gain or loss on the bond for the year, dividing that sum by the value of the bond at the beginning of the year, and expressing the result as a percentage**.

Annual Rate of Return = (Interest + Capital Gain) ÷Bond price at the beginning of the year

($4,700 + $3,000) ÷ $100,000 Rate of return = 7.7%

**ABC purchased a $100,000 par value bond with a coupon rate of 7.8% on 6/30/2012 for $109,000. Sold the bond on 6/29/13 after earning 5% during the year. What was the gain or loss on the bond?**

**ARR = (interest + Capital Gains) ÷ Bond price at beginning of the year.**

**.05 = (7,800 ÷ X) ÷ $109,000 .05 X $109,000 = ($7,800 ÷ X) . $5,450-$7,800 = $2,350 ($2,350 capital loss)**

**Capital Gain – The amount of difference from beginning to end**

**Annual Rate of Return for a Stock**

The annual rate of return for a stock is calculated by summing the dividends and the capital gain (or loss) for the year, dividing that sum by the value of the stock at the beginning of the year, and expressing the result as a percentage.

**Annual Rate of Return = (Capital gain + dividend) ÷ Share price at the beginning of the year**

**($3.00 + .05) ÷ $36.00 Rate of Return is 8.47%**

**During the year, the shaprice of XYZ Company stock rose by 9.7% to $72.40 and during the year XYZ was paid a dividend of $1.92 per share. What annual rate of return would an investor who owned this stock have earned during the year?**

**Determine the Capital Gain and the Original Share price: Current price of $72.40 divided by 1 + .097 (rate of increase) = $66 (original price). Subtract $66 from $72.40 to get capital gain of 6.40. Annual rate of return = (interest + capital gain) ÷ bond price at beginning of year. ($6.40 + $1.92) ÷ $66 = .0126 or 12.6%**

**Application Questions:**

7.4 InsureCo purchased a bond with a par value of $100,000 at the beginning of the year. The fixed annual coupon rate is 5%. The market price for the bond at the end of the year is $105,000. **Calculate the rate of return for the bond for the year.**

**$10,000 ($5,000 interest + $5,000 capital Gain) ÷ $100,000 = .10 or 10%**

7.5 InsureCo purchased 100 shares of stock with a market value of $100 per share at the beginning of the year. InsureCo received dividends of $1.00 per share. At the end of the year, the stock had a market value of $109 per share**. Calculate the rate of return for the stock for the year.**

**$10.00 ($1.00 dividend + $9.00 capital gain) ÷ $100 = .10 or 10%**

**Valuing Bonds and Stocks**

On insurance company financial statements, the reported value of a bond or a stock investment might be based on cost, amortized cost, or fail value, depending on the accounting standard used to prepare the financial statements.

Understanding how bonds and stocks are valued is essential for reading and interpreting the insurer’s financial statements and forecasting how the reported value of the insurer’s investments will change under various economic conditions.

**Cost**

**The cost of a bond is equal to its purchase price (plus acquisition costs/broker fees).** The cost of an investment has the benefit of being readily available and verifiable, reducing the time and expense of creating, updating, and auditing financial statements.

**Amortized Cost**

Most bonds are designed so that their initial market value will equal their face value. The issuer sets the coupon rate based on its projections of a bond’s yield to maturity (interest rate) demanded by investors for similar securities. Yield to maturity depends on the bond’s credit risk, liquidity risk, term to maturity, real rate of return, inflation premium, and other characteristics such as convertibility and callability.

Upon issuance of a bond, its initial market price may differ from its face value due to estimation errors in setting the coupon rate or changes in the yield to maturity (interest rate) demanded by investors for similar securities from the time the coupons was set.

**An investor uses amortized cost valuation to allocate the difference between a bond’s purchase price and face value over the period from bond purchase to maturity.** This applies to both newly issued and previously issued bonds. Amortized costs stabilized a bond’s reported value over time, insulating the investor from reporting large swings in the market value. **The key assumption underlying this valuation method is that the investor intends to hold the bond until maturity.**

Spread cost evenly

Market price if not holding to maturity

Fair market if being traded

**Bond Premium and Discounts**

If an investor purchases a bond with a coupon rate below the yield to maturity for similar bonds, the investor would receive a discount from the bond’s face value to make up for the difference between the yield to maturity (market interest rate) and the lower coupon rate. The annual coupon payment divided by the discounted purchase price would equal the yield to maturity demanded by the market. The opposite occurs if an investor purchases a bond with a coupon rate above the yield to maturity for similar bonds, with the investor paying a premium over the bond’s face value.

Assume an investor purchase a bond at a discount. With amortized cost valuation. The investor initially records the bond’s book value using the discounted purchase price an amortized the discount over the remaining life of the bond so as to report an annual yield to maturity (also called the effective coupon rate) equal to the market rate at purchase. Each year, the amortized portion of the discount is added to the coupon payment to make up for the difference between the actual and effective coupon payment and is added to the book value so that, at maturity, the bond’s book value equals its face value.

Straight-line amortization is a straightforward method for amortizing a bond premium or discount. The premium or discount is divided by the number of periods remaining until maturity to calculate the annual amount.

***Bond Amortization Example***

**Suppose an investor purchase a bond for $10,300, a premium of $300 over its $10,000 face value. The bond’s coupon rate is 4%, and 3 years remain until it matures. The investor willingly paid the $300 premium because the market yield to maturity for similar bonds is less than 4%. Using straight line amortization, the bond premium is amortized by $100 in each of the three years. Each year, the actual coupon payment of $400 is reduced by $100 for an effective coupon payment of $300. The bond’s book value is initially recorded at its purchase price of $10,300 and is reduced each year by $100 until its book value equals the bond $10,000 face value at maturity**.

**Fair Value**

**For financial statement purposes, stock investments and some bond investment, depending on their classification, are reported at fair value rather than cost or amortized cost. Fair value is equal to market value if a bond or stock is actively traded. If the bond or stock is not actively traded, its fair value (market value) must be estimated by observing market prices for similar classes of investments and/or by modeling its expected future cash flows**.

Market to Share – an adjustment in an asset’s valuation to reflect changes in its actual or estimated market price.

**Fair value is often referred to as market-to-share. Because an asset’s price is based on market demand and supply and/or other inputs based on market concepts, its fair value is an economic value** and, as such, can fluctuate significantly over time depending on market conditions.

The Financial Accounting Standards Board’s (FASB’s) ASC Topic 820 “Fair Value Measurements and Disclosures”, which provides guidance for the fair value reporting of financial instruments. It calls for disclosures of fair value and transparency in market-to-market calculations. Furthermore, it clarifies the measurement of fair value by specifying that it is equal to an asset’s exit price, or the price at which the asset can be sold in the market place. Valuation under FASB ASC 820 assumes an orderly exit from an asset position; it does not require the forced liquidation or distressed sale of a financial instrument.

Both United States generally accepted accounting principles (GAAP) and International Financial Reporting Standards (IFRS) provide guidance for the fair value reporting of bonds and stocks. However, they differ in some important details, such as how fair value is measured and whether declines in fair value go through the income statement or are charged directly to shareholder’s equity.

**FASB ASC Topic 820 Fair Value Hierarchy**

The fair value of a bond or stock is the actual or estimated market value of the security. There is a three –level hierarchy for determining a financial instrument’s fair value:

Level 1 – valuation is applied to financial instruments that are actively traded in liquid, transparent marketplaces.

Level 2 – valuation is used when the exact asset or liability is not actively traded, but marketplace activity exists for a like class of instruments. Broker quotes, for example, may be used for level 2 valuation.

Level 3 – valuation is used when there are few market participants and little or no market activity for either the exact asset or liability or similar classes of instruments. Simulation and modeling of expected future cash flows may be used to determine Level 3 fair value.

**Financial Reporting of Bonds and Stocks**

The majority of property-casualty insurer assets consist of bonds and stock investments. Insurers must follow accounting rules for valuing and reporting bonds and stocks under both generally accepted accounting principles (GAAP) and statutory accounting principles (SAP). The valuation of these securities has a significant effect on insurers’ income and shareholders’ equity.

GAAP provide guidance for the valuation and reporting of bonds and stocks. The guidance primarily depends on both of these factors.

* The length of time the investor intends to hold the bond or stock
* Whether the value of the bond or stock is considered to be “impaired”

Under GAAP, an insurer must classify each bond and stock based on the length of time it intends to hold the investment. A bond or stock’s holding period classification determines the method used to value it and the treatment of any unrealized gains and losses. IF the fair value of a bond, or stock falls below its cost/amortized cost, it is considered to be impaired, and, under certain conditions, the reported value of the bond or stock would need to be decreased.

Although SAP employ similar valuation concepts of those of GAAP, they differ in specific valuation and reporting rules.

**GAAP Reporting**

Under GAAP, the Financial Accounting Standard Board’s (FASB’s) ASC Topic 320 provides guidance on accounting and reporting for assets held in an investment portfolio. At the core of FASB ASC 320 is fair value accounting-the concept that any asset or liability that will ultimately settle for cash should be held at fair value. FASB ASC 320 outlines the holding period classifications for assets, valuation on the balance sheet, and the treatment of realized capital gains (losses) and unrealized capital gains (losses).

Realized Capital Gain - The profit earned by an insurer when an asset, such as a bond or stock, is sold for more than its cost.

Unrealized Capital Gain – The profit not yet earned on a held asset when it exceeds its original purchase price but has not been sold.

**Holding Period Classification**

An organization investing in securities must classify them for GAAP purposes as “held-to-maturity securities,” “available for sale securities”, or “trading securities”. **The held-to-maturity” classification applied only to debt securities (bonds).**

**Classifying a debt investment (bond) as a held-to-maturity security means the investing organization must intend, and have the ability, to hold the debt security to its maturity date. Under GAAP, held-to-maturity debt securities are value at amortized cost.**

**Trading securities are equity (stocks) and debt (bonds) investments that an organization holds for a short period of time and intends to sell in the near future**. Securities brokerage firms and banks that engage in the business of trading commonly use the trading securities classification for their holdings. Insurers generally do not use this classification. Under GAAP, trading securities are reported at fair value.

**Available-for-sale securities are equity (stocks) and debt (bonds) investments that management does not intend to sell in the near future**. For stocks, this classification applies if the investments are not classified as trading securities. (The held-to-maturity classification is not available for stocks.) For bonds, this category applies if the investments are not positioned for near-term sale but the organization does not intend to hold them to maturity. **Under GAAP available-for-sale securities are reported at fair value**.

**Realized Gains and Losses**

Gains and losses are realized at the time of a sale of an investment. If an investment is sold for more than its purchase price, a profit, or gain is realized. If an investment is sold for less than its purchase price, a loss is realized. Under GAAP, realized gains or losses on available-for-sale securities and held-to –maturity securities (if any are sold or transferred to the available-for-sale classification prior to maturity) are included in earnings (net income).

**Unrealized Gains and Losses**

Unrealized gains or losses occur due to fluctuations in the market price of an investment after acquisition but before its sale or maturity. If an investments’ current market value is more than its purchase price, the investor has an unrealized gain. If market condition change and the same investment’s market value falls below its purchase price, the investor has an unrealized loss.

The valuation of a bond or stock and the recognition of unrealized gains or losses on the investor’s financial statements depends on the bond or stock’s holding-period classification.

Under GAAP, bonds are classified as either held-to-maturity at an amortized cost valuation with unrealized gains and losses excluded from earnings and shareholders’ equity and disclosed in the notes to financial statements. Or as available-for-sale at fair value with unrealized gains or losses excluded from earning (net income) and reported in a separate component of shareholder’s equity **(other comprehensive income**). Bonds and Stocks in the Trading are valued at fair value and included in the earnings (net income) as unrealized gains or losses.

**Impairment of Financial Assets**

Impairment – in accounting, the reduction in the cost basis of a financial asset by an amount that is deemed to be unrecoverable.

An impairment in more or more of an organization’s invested assets can significantly reduce its shareholder’s equity (net worth). In general, an invested asset is considered impaired when its fair value is less than its cost/amortized cost. For accounting purposes, impairment is associated with “other-than-temporary” (permanent) state in which various factors such as deterioration of the issuer’s creditworthiness or its failure to pay interest or dividends, indicate that the cost/amortized cost of the invested asset, as recorded on the balance sheet, may not be recoverable. An accounting impairment results in a reduction of an asset’s cost basis.

Impairment policy is a set of principles-based rules that are consistently applied to the organization’s portfolio of investments to identify specific positions that should be marked for impairment review. Best practices dictate that the policy should contain both severity and duration thresholds for a position’s unrealized losses to trigger an impairment review. A common threshold is a severity of 95% of cost/amortized cost (fair value is a least 5% less than cost/amortized cost) and duration for the reduction in value that has persisted for 12 months. An asset that is identified via these impairment indicators undergoes a formal assessment.

**If an invested asset, carried at cost/amortized cost, is determined to have an other-than-temporary-impairment (OTTI), its balance sheet value is reduced by the amount of the impairment. FASB ASC 320 provides that a security with an OTTI should use fair value as the new, lower cost basis, and the difference between the previous cost and fair value should be accounted for as a realized loss and reflected in the earnings (net income).**

**Statutory Financial Reporting**

**On the National Association of Insurance Commissioners’ (NAIC) Annual Statement form, the highest-quality bonds – as determined by the NAIC Securities Valuation Office (SVO) – are valued at amortized cost, while lower-quality bonds are value at the lower of amortized cost or market value (fair value). Bonds valued by the (SVO) at less than their amortized cost are reported as a capital loss under SAP.**

Statutory account principles employ the OTTI concept. The cost/amortized cost basis for invested assets determined to be OTTI is reduced, and the reduction in the value flows through the Statement of Income as a realized capital loss.

**Stocks are valued at fair value under both GAAP and SAP.**