**TOPIC 3: FINANCIAL MARKET INSTRUMENTS**

**Organization of the Securities Market**

We can differentiate between the following types of markets:

* **Direct search market**

This is the least organized market. Buyers and sellers must seek each other directly. Such markets are characterised by sporadic participation and low priced, non-standard goods.

* **Brokered market**

In this market, trading in goods is active. Brokers find it profitable to offer search services to buyers and sellers e.g. the real estate market.

* **Dealer market**

This is a market where traders specialize in particular assets, buy and sell for their own account. The spread between the dealer buying price and the sale price are the source of profit. The over-the-counter (OTC) market includes trading in all stocks not listed on one of the exchanges. It can also include trading in listed stocks, which is referred to as the third market. The term third market describes OTC trading of shares listed on an exchange. The OTC market is not a formal organization with membership requirements or a specific list of stocks deemed eligible for trading.

**Auction market**

In an auction market, traders converge at one place to buy and sell assets. The advantage of this market over dealer markets is that one nee d not search across dealers to find the best price for an asset.

* **Primary markets**

This is where new securities are sold.

* **Secondary markets,**

This is where outstanding securities (those already issued in a primary market) are bought and sold.

* **Call versus Continuous Markets**

Beyond the alternative trading systems for equities, the operation of exchanges can differ in terms of when and how the stocks are traded. In call markets, trading for individual stocks takes place at specified times. The intent is to gather all the bids and asks for the stock and attempt to arrive at a single price where the quantity demanded is as close as possible to the quantity supplied. Call markets are generally used during the early stages of development of an exchange when there are few stocks listed or a small number of active investors/traders.

In a continuous market, trades occur at any time the market is open. Stocks in this continuous market are priced either by auction or by dealers. If it is a dealer market, dealers are willing to make a market in the stock, which means that they are willing to buy or sell for their own account at a specified bid and ask price. If it is an auction market, enough buyers and sellers are trading to allow the market to be continuous; that is, when you come to buy stock, there is investor available and willing to sell stock.

**Money market instruments**

Because of their short terms to maturity, the debt instruments traded in the money market undergo the least price fluctuations and so are the least risky investments.

* **Treasury bills**

These short-term debt instruments of the government are issued in 3-, 6- month maturities to finance the government. T-bills are also the safest of all money market instruments, because there is almost no possibility of *default*, a situation in which the party issuing the debt instrument (in this case, the government) is unable to make interest payments or pay off the amount owed when the instrument matures. The government is always able to meet its debt obligations, because it can raise taxes or issue *currency* (paper money or coins) to pay off its debts. Treasury bills are held mainly by banks, although small amounts are held by households, corporations, and other financial intermediaries.

* **Negotiable Bank Certificates of Deposit (CDs)**

A *certificate of deposit (CD)* is a debt instrument, sold by a bank to depositors, that pays annual interest of a given amount and at maturity, pays back the original purchase price. Before 1961, CDs were nonnegotiable; That is, they could not be sold to someone else and could not be redeemed from the bank before maturity without paying a substantial penalty. In 1961, to make CDs more liquid and more attractive to investors, Citibank (USA) introduced the first negotiable CD in large denominations that could be resold in a secondary market. This instrument is now issued by almost all the major commercial banks and has been extremely successful.

* **Commercial Paper**

*Commercial paper* is a short-term debt instrument issued by large banks and well-known corporations, such as EABL and Safaricom. Before their growth in popularity in the 1960s, corporations usually borrowed their short-term funds from banks, but since then they have come to rely more heavily on selling commercial paper to other financial intermediaries and corporations for their immediate borrowing needs; in other words, they engage in *direct finance*.

* **Bankers Acceptances**

These money market instruments are created in the course of carrying out international trade and have been in use for hundreds of years. A banker’s acceptance is a bank draft (a promise of payment similar to a check) issued by a firm, payable at some future date, and guaranteed for a fee by the bank that stamps it “accepted.” The firm issuing the instrument is required to deposit the required funds into its account to cover the draft. If the firm fails to do so, the bank’s guarantee means that it is obligated to make good on the draft. The advantage to the firm is that the draft is more likely to be accepted when purchasing goods abroad, because the foreign exporter knows that even if the company purchasing the goods goes bankrupt, the bank draft will still be paid off. These “accepted” drafts are often resold in a secondary market at a discount and are therefore similar in function to Treasury bills.

* **Repurchase Agreements (Repos)**

Repurchase agreements, or repos, are effectively short-term loans (usually with a maturity of less than two weeks) in which Treasury bills serve as collateral, an asset that the lender receives if the borrower does not pay back the loan. Repos are made as follows: A large corporation, such as EABL, may have some idle funds in its bank account, say Ksh. 1 million, which it would like to lend for a week. EABL uses this excess Ksh. 1 million to buy Treasury bills from a bank, which agrees to repurchase them the following week at a price slightly above EABL’s purchase price. The effect of this agreement is that EABL makes a loan of Ksh.1 million to the bank and holds Ksh. 1 million of the bank’s Treasury bills until the bank repurchases the bills to pay off the loan. Repurchase agreements are a fairly recent innovation in financial markets. They are now an important source of bank funds

**Capital Market Instruments**

*Capital market instruments* are debt and equity instruments with maturities of greater than one year. They have far wider price fluctuations than money market instruments and are considered to be fairly risky investments.

* **Stocks**

Stocks are equity claims on the net income and assets of a corporation.

* **Mortgages**

*Mortgages* are loans to households or firms to purchase housing, land, or other real structures, where the structure or land serves as collateral for the loans. Savings and loan associations (e.g. the KCB owned S & L), mortgage finance institutions (e.g. Housing Finance) and commercial banks have been the primary lenders in the residential mortgage market loans.

In the United States of America, the government plays an active role in the mortgage market via the three government agencies—the Federal National Mortgage Association (FNMA, “Fannie Mae”), the Government National Mortgage Association (GNMA, “Genie Mae”), and the Federal Home Loan Mortgage Corporation (FHLMC, “Freddie Mac”)—that provide funds to the mortgage market by selling bonds and using the proceeds to buy mortgages. An important development in the residential mortgage market in recent years is the mortgage-backed security. The global financial crisis of 2008-09 has been traced to defaults by borrowers in these mortgage companies.

*Mortgage-Backed Securities*

A major change in the residential mortgage market in recent years has been the creation of an active secondary market for mortgages. Because mortgages have different terms and interest rates, they were not sufficiently liquid to trade as securities on secondary markets. To stimulate mortgage lending, in 1970 the Government National Mortgage Association (GNMA, called “Genie Mae”) developed the concept of a pass-through *mortgage-backed security* when it began a program in which it guaranteed interest and principal payments on bundles of standardized mortgages. Under this program, private financial institutions such as savings and loans and commercial banks were now able to gather a group of GNMA-guaranteed mortgages into a bundle of, say, Ksh.1 million and then sell this bundle as a security to a third party (usually a large institutional investor such as a pension fund). When individuals make their mortgage payments on the GNMA-guaranteed mortgage to the financial institution, the financial institution passes the payments through to the owner of the security by sending a check for the total of all the payments. Because GNMA guarantees the payments, these pass-through securities have a very low default risk and are very popular, with amounts outstanding exceeding Ksh.500 billion.

Mortgage-backed securities are issued not only by the government agencies, but also by private financial institutions. Indeed, mortgage-backed securities have been so successful that they have completely transformed the residential mortgage market. Throughout the 1970s, over 80% of residential mortgages in the USA were owned outright by savings and loans, mutual savings banks, and commercial banks. Now only one-third are owned outright by these institutions, with two thirds held as mortgage-backed securities.

In Kenya, the mortgage backed securities market is not well developed, as most mortgages are still owned by the originating institutions.

* **Corporate Bonds**

These are long-term bonds issued by corporations with very strong credit ratings. The typical *corporate bond* sends the holder an interest payment twice a year and pays off the face value when the bond matures. Some corporate bonds, called *convertible bonds*, have the additional feature of allowing the holder to convert them into a specified number of shares of stock at any time up to the maturity date. This feature makes these convertible bonds more desirable to prospective purchasers than bonds without it, and allows the corporation to reduce its interest payments, because these bonds can increase in value if the price of the stock appreciates sufficiently. Because the outstanding amount of both convertible and nonconvertible bonds for any given corporation is small, they are not nearly as liquid as other securities such as government bonds. The principal buyers of corporate bonds are life insurance companies; pension funds and households are other large holders.

There are different types of bonds:

* **Mortgage bonds** are backed by real assets pledged as security.
* **Debentures** are not backed by any security.
* **Subordinate bonds** can only be paid after senior obligations are satisfied.
* **Convertible bonds** offer the investor the option to convert bonds to shares of the firm's equity.
* **Income bonds** are so named because interest payments are only made if the company generates sufficient income.
* **Zero coupon bonds** pay no coupons (interest), and their return is purely from purchasing at a discount.
* **Floating rate bonds** are so named because the coupon rate is tied to some basic rate such as Treasury-bill rates. These provide protection against inflation and interest rate risk and keep bonds selling close to their par values.
* **Puttable bonds** offer the option of returning the bonds at face value. Most bonds will contain a deferment period, a period in the early life of the bond when it cannot be recalled.
* **Junk bonds** are high risk, high return bonds. Typically, these are issued by lower-rated entities and are often tied to mergers or leveraged buyouts.

Corporate bonds could either be floating rate or fixed rate. Floating rate bonds have coupons that can be varied depending on some predetermined rate of interest, mostly the t-bill rate. Fixed rate bonds have a fixed coupon rate.

Bond features and prices

A bond is an interest only loan issued by the government (Treasury bond) or by corporations (Corporate bonds). The regular interest payments that the bond issuer promises to make are called **coupons**. The amount that will be repaid at the end of the loan is called the **par value** or the **face value**. The annual coupon divided by the face/ par value of a bond is called the **coupon rate**. The number of years till the face value is paid is the bond’s **term to maturity**.

To calculate the value of a bond, we need to know the remaining time to maturity, the face value, the coupon, and the **market interest rate** for bonds with similar features. This market interest rate (the interest rate required in the market) is called the **yield to maturity (YTM)** or **simply the yield**. It is the rate of return that equates the present value of the cash flows to be expected from a bond to its market value. This is covered in detail in the chapter on interest rates. The **bond indenture** is the bond agreement between the issuer and the buyer.

Example 1: Valuing bonds

ABC LTD has issued a Ksh. 100 bond with 10 years to maturity. The bond has an annual coupon of 8%. Similar bonds have a YTM of 8%. Assume interest is payable only once a year. Represent the expected cash flows from the bond on a number line (Year 0 to 10). What is the value of this bond?

The value of the bond is:

Po= 8 \* PVIAF (8%, 10 years) + 100 \* PVIF (8%, 10 years) = Ksh. 100.00. What conclusion can you reach from this result? You observe that when the required rate of return in the market (YTM) is equal to the coupon rate, the value of the band equals its par value.

Calculate the value of the bond at a YTM of 6%, and 10%. What do you conclude from the results?

Suppose a year has passed (that is, the time to maturity is 9 years), what is the value of the bond when the YTM for similar bonds is:

1. 8%

ii. 10%

At 8%, you should get a value of Ksh. 88.50. Since the bond will be selling at lower than its par value of Ksh. 100, it is a **discount bond.** The opposite of a discount bond is a **premium bond**.

Semi-annual coupons

In reality, most bonds pay coupons on a semi- annual basis. For example, a Ksh. 100 bond that has a coupon of 14% will give the holder a coupon of Ksh. 14 per annum, but in two installments of Ksh. 7 each per bond. What would be the value of such if the YTM for similar bonds in the market is 16% and the time to maturity is seven years? What is the effective rate?

Solution

Coupons: 14% \* 100 = Ksh. 14, payable Ksh. 7 in June, and Ksh. In December. We shall work with the Ksh. 7.

YTM for similar bonds= 16% per annum, that is 8% per half year. We shall work with 8%.

Time to maturity is 7 year, or 14 half years. We shall work with 14.

Po= 7 \* PVIAF (14, 8%) + 100 \* PVIF (14, 8%) = Ksh. 91.76. this is a discount bond.

The effective annual rate is = =?

We are squaring since coupons are being paid twice a year. If coupons are paid four times per year, we would raise to power 4, and so on.

Bond markets

Bonds may trade at a formal exchange such as the NSE or over the counter (OTC). In an OTC, transactions are negotiated privately and there is little or no central reporting of transactions. Please refer to the class illustrations for examples of the bonds traded at the NSE.

Bond price reporting in Kenya

Refer to classroom discussion on this.

Note about bond price quotes

If you buy a bond between coupon payments, the amount you will pay will be greater than the quoted price. In bond markets, prices are quoted net of accrued interest, that is accrued interest is deducted to arrive at the quoted price. The quoted price is also known as the **clean price**. The price you pay, however, includes accrued interest and is called the **dirty** or **full** or **invoice** price.

* **Treasury Bonds**

These long-term debt instruments are issued by the Central bank of Kenya to finance the deficits of the government. Long-term debt instruments issued by state and local governments to finance expenditures on schools, roads, and other large programs are referred to as *Infrastructure bonds*, and are increasingly being used by the government to raise funds for large projects.

* **Local Government Bonds**

Local Government bonds, also called *municipal bonds*, are long-term debt instruments issued by the local governments (City Council, Municipal Councils, and County Governments) to finance expenditures on large social projects and bridge budget deficits. For example, the Nairobi City Council is planning to float a Ksh. 10 billion municipal bond to upgrade infrastructure in the city.

* **Consumer and Bank Commercial Loans**

These are loans to consumers and businesses made principally by banks, but—in the case of consumer loans—also by Hire Purchase companies and credit unions. There are often no secondary markets in these loans, which makes them the least liquid of the capital market instruments.

**Derivative securities**

Financial derivatives are so effective in reducing risk because they enable financial institutions to **hedge**; that is, engage in a financial transaction that reduces or eliminates risk. When a financial institution has bought an asset, it is said to have taken a **long position**, and this exposes the institution to risk if the returns on the asset are uncertain. On the other hand, if it has sold an asset that it has agreed to deliver to another party at a future date, it is said to have taken a **short position**, and this can also expose the institution to risk. Financial derivatives can be used to reduce risk by invoking the following basic principle of hedging: ***Hedging risk involves engaging in*** ***a financial transaction that offsets a long position by taking an additional short*** ***position, or offsets a short position by taking an additional long position***.

Equity-derivative securities are securities that have a claim on the common stock of a firm. This would include:

* **Options**

This refers to rights (but not obligation) to buy or sell common stock at a specified price for a stated period of time. The two kinds of option instruments are

(1) Warrants and

(2) Puts and calls.

*Warrants*

A warrant is an option issued by a corporation that gives the holder the right to acquire a firm’s common stock from the company at a specified price within a designated time period. The warrant does not constitute ownership of the stock, only the option to buy the stock.

*Puts and Calls*

A call option is similar to a warrant because it is an option to buy the common stock of a company within a certain period at a specified price called the striking price. A call option differs from a warrant because it is not issued by the company but by another investor who is willing to assume the other side of the transaction. Options also are typically valid for a shorter time period than warrants. The holder of a put option has the right to sell a given stock at a specified price during a designated time period. Puts are useful to investors who expect a stock price to decline during the specified period or to investors who own the stock and want protection from a price decline.

* **Forward and Futures Contracts**

Forward contracts are negotiated in the over-the-counter market. This means that forward contracts are agreements between two private parties—one of which is often a derivatives intermediary, such as a commercial or an investment bank—rather than traded through a formal security or commodity exchange. One advantage of this private arrangement is that the terms of the contract are completely flexible; they can be whatever any two mutually consenting counterparties agree to. Another desirable feature to many counterparties is that these arrangements may not require *collateral;* instead, the long and short positions sometimes trust each other to honor their respective commitments at Date *T.* This lack of collateral means that forward contracts involve *credit* (or *default*) *risk,* which is one reason why commercial banks are often market makers in these instruments.

One disadvantage of a forward contract is that it is quite often *illiquid,* meaning that it might be difficult or costly for a counterparty to exit the contract before it matures. Illiquidity is really a by-product of the contract’s flexibility because the more specifically tailored an agreement is to the needs of a particular individual, the less marketable it will be to someone else. Futures contractssolve this problem by standardizing the terms of the agreement (e.g., expiration date, identity and amount of the underlying asset) to the extent that it can be exchange traded. In contrast to the forward market, both parties in a futures contract trade through a centralized market, called a *futures exchange.* Although the standardization of contracts reduces the ability of the ultimate end users to select the most desirable terms, it does create contract *homogeneity,* whereby the counterparties can always *unwind* a previous commitment prior to expiration by simply trading their existing position back to the exchange at the prevailing market price.

**INVESTMENT COMPANIES AND MUTUAL FUNDS**

The investment alternatives described so far are individual securities that can be acquired from a government entity, a corporation, or another individual. However, rather than directly buying an individual stock or bond issued by one of these sources, you may choose to acquire these investments indirectly by buying shares in an investment company, also called a mutual fund, that owns a portfolio of individual stocks, bonds, or a combination of the two. Specifically, an investment company sells shares in itself and uses the proceeds of this sale to acquire bonds, stocks, or other investment instruments. As a result, an investor who acquires shares in an investment company is a partial owner of the investment company’s portfolio of stocks or bonds. We will distinguish investment companies by the types of investment instruments they acquire.

* **Money Market Funds**

Money market funds are investment companies that acquire high quality, short-term investments (referred to as money market instruments), such as T-bills, high grade commercial paper (public short-term loans) from various corporations, and large CDs from the major banks.

Individuals tend to use money market funds as alternatives to bank savings accounts because they are generally quite safe (although they are not insured, they typically limit their investments to high-quality, short-term investments), they provide yields above what is available on most savings accounts, and the funds are readily available.

* **Bond (Fixed Income Securities) Funds**

Bond funds generally invest in various long-term government, corporate, or municipal bonds. They differ by the type and quality of the bonds included in the portfolio as assessed by various rating services. Specifically, the bond funds range from those that invest only in risk-free government bonds and high-grade corporate bonds to those that concentrate in lower rated corporate or municipal bonds, called high-yield bonds or junk bonds. The expected rate of return from various bond funds will differ, with the low-risk government bond funds paying the lowest returns and the high-yield bond funds expected to pay the highest returns.

* **Common Stock (Equity) Funds**

Numerous common stock funds invest to achieve stated investment objectives, which can include aggressive growth, income, precious metal investments, and international stocks. Such funds offer smaller investors the benefits of diversification and professional management.

* **Balanced Funds**

Balanced funds invest in a combination of bonds and stocks of various sorts depending on their stated objectives.

* **Index Funds**

Index funds are mutual funds created to equal the performance of a market index like the NSE 20 or the ASE. Such funds appeal to passive investors who want to simply experience returns equal to some market index either because they do not want to try to “beat the market” or they believe in efficient markets and do not think it is possible to do better than the market in the long run.

**REAL ESTATE**

Like commodities, most investors view real estate as an interesting and profitable investment alternative but believe that it is only available to a small group of experts with a lot of capital to invest. In reality, some feasible real estate investments require no detailed expertise or large capital commitments. Below are some low-capital alternatives.

* **Real Estate Investment Trusts (REITS)**

A real estate investment trust is an investment fund designed to invest in various real estate properties. It is similar to a stock or bond mutual fund, except that the money provided by the investors is invested in property and buildings rather than in stocks and bonds.

* **Direct Real Estate Investment**

The most common type of direct real estate investment is the purchase of a home, which is the largest investment most people ever make.

* **Raw Land**

Another direct real estate investment is the purchase of raw land with the intention of selling it in the future at a profit. During the time you own the land, you have negative cash flows caused by property maintenance, and taxes. An obvious risk is the possible difficulty of selling it for an uncertain price. Raw land generally has low liquidity compared to most stocks and bonds.

* **Land Development**

Land development can involve buying raw land, dividing it into individual lots, and building houses on it. Alternatively, buying land and building a shopping mall would also be considered land development. This is a feasible form of investment but requires a substantial commitment of capital, time, and expertise. Although the risks can be high because of the commitment of time and capital, the rates of return from a successful housing or commercial development can be significant.

**LOW-LIQUIDITY INVESTMENTS**

Most of the investment alternatives we have described thus far are traded on securities markets and except for real estate, have good liquidity. In contrast, the investments in this section have very poor liquidity and financial institutions do not typically acquire them because of the illiquidity and high transaction costs compared to stocks and bonds. Many of these assets are sold at auctions, causing expected prices to vary substantially.

* **Antiques**

The greatest returns from antiques are earned by dealers who acquire them at estate sales or auctions to refurbish and sell at a profit. If we gauge the value of antiques based on prices established at large public auctions, it appears that many serious collectors enjoy substantial rates of return. In contrast, the average investor who owns a few pieces to decorate his or her home finds such returns elusive. The high transaction costs and illiquidity of antiques may erode any profit that the individual may expect to earn when selling these pieces.

* **Art**

The entertainment sections of newspapers or the personal finance sections of magazines often carry stories of the results of major art auctions, such as when Van Gogh’s *Irises* and *Sunflowers.(Could you name at least 2 other artists whose work trades for substantial amounts of money?)*

However, investing in art typically requires substantial knowledge of art and the art world, a large amount of capital to acquire the work of well-known artists, patience, and an ability to absorb high transaction costs. For investors who enjoy fine art and have the resources, these can be satisfying investments; but, for most small investors, it is difficult to get returns that compensate for the uncertainty and illiquidity.

* **Coins and Stamps**

Many individuals enjoy collecting coins or stamps as a hobby and as an investment. The market for coins and stamps is fragmented compared to the stock market, but it is more liquid than the market for art and antiques as indicated by the publication of weekly and monthly price lists.

* **Diamonds and Gold**

Diamonds and Gold can be and have been good investments during many periods. Still, investors who purchase diamonds must realize that

* Diamonds/ Gold can be highly illiquid.
* The grading process that determines their quality is quite subjective,
* Most investment-grade gems/ metals require substantial investments, and
* They generate no positive cash flow during the holding period until the stone/ metal is sold.