**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.