

appendix
to chapter

2

Financial Market Instruments

Here we examine the securities (instruments) traded in financial markets. We first focus on the instruments traded in the money market and then turn to those traded in the capital market.

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. The money market has undergone great changes in the past three decades, with the amount of some financial instruments growing at a far more rapid rate than others.

The principal money market instruments are listed in Table 1 along with the amount outstanding at the end of 1970, 1980, 1990, and 2002.

United States Treasury Bills. These short-term debt instruments of the U.S. government are issued in 3-, 6-, and 12-month maturities to finance the federal government. They pay a set amount at maturity and have no interest payments, but they effectively pay interest by initially selling at a discount, that is, at a price lower than the set amount paid at maturity. For instance, you might pay \$9,000 in May 2004 for a one-year Treasury Bill that can be redeemed in May 2005 for \$10,000.

U.S. Treasury bills are the most liquid of all the money market instruments, because they are the most actively traded. They 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 (the federal government, in this case) is unable to make interest payments or pay off the amount owed when the instrument matures. The federal 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. 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 introduced the first negotiable CD in large denominations (over \$100,000) 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, with the amount outstanding currently around \$1.2 trillion. CDs

Table 1 Principal Money Market Instruments

Type of Instrument	1970	Amount Outstanding (\$ billions, end of year)		
		1980	1990	2002
U.S. Treasury bills	81	216	527	888
Negotiable bank certificates of deposit (large denominations)	55	317	543	1,177
Commercial paper	33	122	557	1,321
Banker's acceptances	7	42	52	9
Repurchase agreements	3	57	144	470
Federal funds*	16	18	61	29
Eurodollars	2	55	92	213

*Figures after 1970 are for large banks only.

Sources: Federal Reserve Flow of Funds Accounts; Federal Reserve *Bulletin*; *Banking and Monetary Statistics, 1945–1970*; *Annual Statistical Digest, 1971–1975*; *Economic Report of the President*. www.federalreserve.gov/releases/z1

are an extremely important source of funds for commercial banks, from corporations, money market mutual funds, charitable institutions, and government agencies.

Commercial Paper. *Commercial paper* is a short-term debt instrument issued by large banks and well-known corporations, such as General Motors and AT&T. Before 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. Growth of the commercial paper market has been substantial: The amount of commercial paper outstanding has increased by over 3,900% (from \$33 billion to \$1.3 trillion) in the period 1970–2002. We discuss why the commercial paper market has had such tremendous growth in Chapter 10.

Banker's 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. Typically, they are held by many of the same parties that hold Treasury bills, and the amount outstanding has experienced limited growth, rising by 28% (\$7 billion to \$9 billion) from 1970 to 2002.

Following the Financial News

Money Market Rates

The *Wall Street Journal* publishes daily a listing of interest rates on many different financial instruments in its “Money Rates” column. (See “Today’s Contents” on page 1 of the *Journal* for the location.)

The four interest rates in the “Money Rates” column that are discussed most frequently in the media are these:

- **Prime rate:** The base interest rate on corporate bank loans, an indicator of the cost of business borrowing from banks
- **Federal funds rate:** The interest rate charged on overnight loans in the federal funds market, a sensitive indicator of the cost to banks of borrowing funds from other banks and the stance of monetary policy
- **Treasury bill rate:** The interest rate on U.S. Treasury bills, an indicator of general interest-rate movements
- **Federal Home Loan Mortgage Corporation rates:** Interest rates on “Freddie Mac”-guaranteed mortgages, an indicator of the cost of financing residential housing purchases

MONEY RATES

Wednesday, June 3, 2003

The key U.S., and foreign annual interest rates below are a guide to general levels but don't always represent actual transactions.

PRIME RATE: 4.25% (effective 11/07/02).

DISCOUNT RATE: 2.25% (effective 01/09/03).

FEDERAL FUNDS: 1.250% high, 1.000% low, 1.125% near closing bid, 1.188% offered. Effective rate: 1.22%. Source: Prebon Yamane (USA) Inc. Federal-funds target rate: 1.250% (effective 11/06/02).

CALL MONEY: 3.00% (effective 11/07/02).

COMMERCIAL PAPER: Placed directly by General Electric Capital Corp.: 1.05% 30 to 35 days; 1.24% 36 to 43 days; 1.23% 44 to 70 days; 1.21% 71 to 99 days; 1.19% 100 to 113 days; 1.05% 114 to 122 days; 1.19% 123 to 143 days; 1.17% 144 to 270 days.

EURO COMMERCIAL PAPER: Placed directly by General Electric Capital Corp.: 2.25% 30 days; 2.20% two months; 2.19% three months; 2.15% four months; 2.14% five months; 2.13% six months.

DEALER COMMERCIAL PAPER: High-grade unsecured notes sold through dealers by major corporations: 1.21% 30 days; 1.20% 60 days; 1.19% 90 days.

CERTIFICATES OF DEPOSIT: 1.26% one month; 1.21% three months; 1.18% six months.

BANKERS ACCEPTANCE: 1.25% 30 days; 1.22% 60 days; 1.19% 90 days; 1.17% 120 days; 1.16% 150 days; 1.14% 180 days; Source: Prebon Yamane (USA) Inc.

Source: *Wall Street Journal*, Wednesday, June 4, 2003, p. C14.

LONDON INTERBANK OFFERED RATES (LIBOR): 1.31875% one month; 1.2800% three months; 1.2300% six months; 1.2300% one year. Effective rate for contracts entered into two days from date appearing at top of this column.

EURO INTERBANK OFFERED RATES (EURIBOR): 2.319% one month; 2.235% three months; 2.179% six months; 2.122% one year. Source: Reuters.

FOREIGN PRIME RATES: Canada 5.00%; European Central Bank 2.50%; Japan 1.375%; Switzerland 2.25%; Britain 3.75%

TREASURY BILLS: Results of the Monday, June 2, 2003, auction of short-term U.S. government bills, sold at a discount from face value in units of \$1,000 to \$1 million: 1.110% 13 weeks; 1.095% 26 weeks. Tuesday, June 3, 2003 auction: 1.140% 4 weeks.

OVERNIGHT REPURCHASE RATE: 1.22%. Source: Garban Intercapital

FREDDIE MAC: Posted yields on 30-year mortgage commitments. Delivery within 30 days 4.68%, 60 days 4.80%, standard conventional fixed-rate mortgages: 2.875%, 2% rate capped one-year adjustable rate mortgages.

FANNIE MAE: Posted yields on 30 year mortgage commitments (priced at par) for delivery within 30 days 4.78%, 60 days 4.87% standard conventional fixed-rate mortgages; 3.00% 6/2 rate capped one-year adjustable rate mortgages. Constant Maturity Debt Index: 1.193% three months; 1.119% six months; 1.187% one year

MERRILL LYNCH READY ASSETS TRUST: 0.78%.

CONSUMER PRICE INDEX: April 183.8, up 2.2% from a year ago. Bureau of Labor Statistics.

Repurchase Agreements. *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 General Motors, may have some idle funds in its bank account, say \$1 million, which it would like to lend for a week. GM uses this excess \$1 million to buy Treasury bills from a bank, which agrees

to repurchase them the next week at a price slightly above GM's purchase price. The effect of this agreement is that GM makes a loan of \$1 million to the bank and holds \$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, having been introduced in 1969. They are now an important source of bank funds (over \$400 billion). The most important lenders in this market are large corporations.

Federal (Fed) Funds. These are typically overnight loans between banks of their deposits at the Federal Reserve. The *federal funds* designation is somewhat confusing, because these loans are not made by the federal government or by the Federal Reserve, but rather by banks to other banks. One reason why a bank might borrow in the federal funds market is that it might find it does not have enough deposits at the Fed to meet the amount required by regulators. It can then borrow these deposits from another bank, which transfers them to the borrowing bank using the Fed's wire transfer system. This market is very sensitive to the credit needs of the banks, so the interest rate on these loans, called the federal funds rate, is a closely watched barometer of the tightness of credit market conditions in the banking system and the stance of monetary policy; when it is high, it indicates that the banks are strapped for funds, whereas when it is low, banks' credit needs are low.

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. The principal capital market instruments are listed in Table 2, which shows the amount outstanding at the end of 1970, 1980, 1990, and 2002.

Table 2 Principal Capital Market Instruments

Type of Instrument	1970	Amount Outstanding (\$ billions, end of year)		
		1980	1990	2002
Corporate stocks (market value)	906	1,601	4,146	11,734
Residential mortgages	355	1,106	2,886	6,930
Corporate bonds	167	366	1,008	2,699
U.S. government securities (marketable long-term)	160	407	1,653	2,169
U.S. government agency securities	51	193	435	2,305
State and local government bonds	146	310	870	1,442
Bank commercial loans	152	459	818	1,345
Consumer loans	134	355	813	1,757
Commercial and farm mortgages	116	352	829	1,461

Sources: Federal Reserve Flow of Funds Accounts; Federal Reserve *Bulletin*; *Banking and Monetary Statistics, 1941–1970*. <http://www.federalreserve.gov/releases/z1>

Stocks. *Stocks* are equity claims on the net income and assets of a corporation. Their value of \$11 trillion at the end of 2002 exceeds that of any other type of security in the capital market. The amount of new stock issues in any given year is typically quite small—less than 1% of the total value of shares outstanding. Individuals hold around half of the value of stocks; the rest are held by pension funds, mutual funds, and insurance companies.

Mortgages. *Mortgages* are loans to households or firms to purchase housing, land, or other real structures, where the structure or land itself serves as collateral for the loans. The mortgage market is the largest debt market in the United States, with the amount of residential mortgages (used to purchase residential housing) outstanding more than quadruple the amount of commercial and farm mortgages. Savings and loan associations and mutual savings banks have been the primary lenders in the residential mortgage market, although commercial banks have started to enter this market more aggressively. The majority of commercial and farm mortgages are made by commercial banks and life insurance companies. The federal 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, “Ginnie 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 (see Box 1).

Box 1

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 “Ginnie 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, \$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 \$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 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.

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 U.S. government bonds.

Although the size of the corporate bond market is substantially smaller than that of the stock market, with the amount of corporate bonds outstanding less than one-fourth that of stocks, the volume of new corporate bonds issued each year is substantially greater than the volume of new stock issues. Thus the behavior of the corporate bond market is probably far more important to a firm's financing decisions than the behavior of the stock market. The principal buyers of corporate bonds are life insurance companies; pension funds and households are other large holders.

U.S. Government Securities. These long-term debt instruments are issued by the U.S. Treasury to finance the deficits of the federal government. Because they are the most widely traded bonds in the United States (the volume of transactions on average exceeds \$100 billion daily), they are the most liquid security traded in the capital market. They are held by the Federal Reserve, banks, households, and foreigners.

U.S. Government Agency Securities. These are long-term bonds issued by various government agencies such as Ginnie Mae, the Federal Farm Credit Bank, and the Tennessee Valley Authority to finance such items as mortgages, farm loans, or power-generating equipment. Many of these securities are guaranteed by the federal government. They function much like U.S. government bonds and are held by similar parties.

State and Local Government Bonds. State and local bonds, also called *municipal bonds*, are long-term debt instruments issued by state and local governments to finance expenditures on schools, roads, and other large programs. An important feature of these bonds is that their interest payments are exempt from federal income tax and generally from state taxes in the issuing state. Commercial banks, with their high income tax rate, are the biggest buyers of these securities, owning over half the total amount outstanding. The next biggest group of holders consists of wealthy individuals in high income brackets, followed by insurance companies.

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 finance companies. There are often no secondary markets in these loans, which makes them the least liquid of the capital market instruments listed in Table 2. However, secondary markets have been rapidly developing.