**CHAPTER 4:**

**Functions and Characteristics**

**of Financial Instruments**

**FOCUS OF THE CHAPTER**

This chapter provides basic information about various **financial instruments** traded in **money, capital,** and **derivative markets**. In doing so, the origin, history, role, and importance of these instruments in the Canadian financial system are also discussed. Particular attention is paid to **recent innovations** in money, capital, and derivative markets.

**Learning Objectives:**

1. Provide a general classification of the major types of financial instruments in Canada
2. Explain how money, capital, and derivative market instruments originated, their role in the Canadian financial system, and their relative importance in the marketplace
3. Distinguish among the instruments discussed and choose the most important ones for understanding how financial markets operate in Canada

**Chapter Introduction**

There is an enormous array of different types of financial instruments which are created each time a financial transaction is entered into by two or more parties. We already understand that a motivating cause for these transactions is to shift funds from low-valued uses to higher-valued uses. Now we need to recognize that along with our desire to shift the use of funds, we also experience a desire to shift risk. Some individuals and companies have limited capacity to incur and tolerate risk while others have a far greater capacity to tolerate risk, financial and insurance markets have evolved to shift risk. The inherent risks of an uncertain future are still with us, but the burden and the disutility associated with risk is minimized.

This basic insight will help us understand why we encounter both debt and equity type instruments. When a company borrows money and issues debt securities, it promises an income to the lender regardless of the profitability of its business activities. That will shift some aspects of risk from the lender to the borrower. Of course, it may default on that promise, so the lender is not without any risk. When a company sell shares it is creating equity type securities. These give the holders of those shares ownership and a residual claim and this means that the risks of uncertain future profitability are born by the shareholders.

**SECTION SUMMARIES**

**The Money Market**

Financial instruments, in particular, debt instruments, with less than one year of maturity are money market instruments. Because these financial instruments trade in markets that have a great volume of trading activity and because they do not fluctuate significantly in market value, they are very close substitutes for money.

***The Overnight Market:*** The financial instruments with the shortest available term to maturity are traded in this market. Funds are made available until the following business day. In 1994, the Bank of Canada adopted an operating band for the overnight market. The overnight rate fluctuates between the upper and lower limits of the **operating band** set by the Bank of Canada. The Bank of Canada also announces a target rate for the **overnight rate**. Deposit-taking institutions are the principal borrowers in this market in which investment funds and mutual funds also participate.

***Treasury Bills:*** Treasury bills (known as T-bills) are debt instruments issued by the government and sold at a discount (i.e., less than the par value). Maturities range from 91 days to one year. In 1980 the treasury bill rate was linked to the bank rate according to the formula: Bank rate = T-bill rate + 0.25%. Since early 1996, the bank rate has been set at the upper limit of the overnight rate band.

***Treasury Bill Auctions:*** The treasury bill rate is determined by the highest bidders in biweekly auctions. Every other Tuesday, by 12.30 P.M., would-be buyers (investment dealers and chartered banks) place their bids with the Bank of Canada in Ottawa, specifying the amount to be purchased and the yield. The Bank of Canada also puts in a reserve bid. By 1:30 P.M. the Bank of Canada ranks bids from the highest to the lowest, and announces the successful ones. The Bank of Canada also announces the amounts to be auctioned the next time.

*The Bank of Canada and Interest Rates:* In addition to influencing rates of interest through the T-bill rate, the Bank of Canada influences interest rates in three other ways: by manipulating **government deposits**, through **open market operations**, and by the **drawdown and redeposit technique**.

 Open market operations involve the buying and selling of government securities such as T-bills in regular (open) markets. The drawdown and redeposit technique involves shifting government deposits between chartered banks and the Bank of Canada. The Bank of Canada uses this technique to manipulate liquidity in the overnight market and thereby influence the overnight rate.

***Large Value Transfer System (LVTS):*** Until recently, cheques were cleared overnight and settled retroactively. Under such a system, large-scale defaults of cheques can lead to a loss of confidence in the clearing and settlement mechanism, which results in **systematic risk**. The LVTS is designed to reduce the time gap between the presentation of a cheque for payment and its actual receipt in order to speed up the clearing and settlement process and to reduce systematic risk.

***Provincial and Municipal Treasury Bills:*** These are treasury bills issued by provincial and municipal governments, whose rates are determined in part by the federal government T-bill rate and by the creditworthiness of the issuer.

***Government-Backed Financial Instruments:*** Federal and provincial Crown corporations and agencies also sell T-bills which have little default risk.

***Bank of Canada Advances:*** These are loans issued at a rate equivalent to the bank rate by the Bank of Canada as the **lender of last resort** to members of the Canadian Payments Association, generally for one business day, to meet emergency shortages of funds.

The terms and conditions governing these loans have changed significantly over time.

***Special Purchase and Resale Agreements:*** A special purchase and resale agreement (SPRA) is a two-step transaction (i.e., the Bank of Canada purchases securities one day and sells the following day) between the Bank of Canada and a financial institution (usually an investment dealer). The purpose of SPRAs is to temporarily inject

liquidity into the financial system. The rate is set at the bank rate. Reverse SPRAs,

also called special sale and repurchase agreements (SSRAs), are used to temporarily reduce liquidity. SPRAs have been used to ensure that overnight rates stay within the operating band.

*An Illustration:* Suppose a chartered bank expects a shortage of liquidity and plans to call in a loan from an investment dealer. The Bank of Canada wants to prevent a possible increase in the overnight rate due to the shortage of liquidity. Therefore, the Bank of Canada offers to purchase an equivalent amount of T-bills from the dealer, who uses the proceeds to pay off the loan. The following day, the chartered bank reverses the transaction and restores the call loan, and the SPRA expires.

*The Use of SPRAs and SSRAs:* After the stock market collapse of October 1987, the Bank of Canada used SPRAs to drive short-term interest rates down by 0.75% in a couple of weeks, and later offered SSRAs. Between 1985 and 1994, SPRAs were used more frequently to keep interest rate levels up. From 1997 to early 1999, SSRAs were used more often, as overnight rates rose sharply.

***Purchase and Resale Agreements:*** Purchase and resale agreements (PRAs) operate

like SPRAs, but are initiated by money market dealers. PRAs first appeared in Canada

in 1953.

***Bankers Acceptances:*** Bankers Acceptances (BAs) are promises to pay in future. They are issued by non-financial firms and are guaranteed by a bank. Their term to maturity varies from a few days to one year, and they are sold at a discount. They are widely used in international trade-related transactions.

*Illustrating the Mechanics:* An importer asks its bank to prepare a letter of credit (called a draft), intended for the exporter, in the amount of the goods purchased. The exporter can discount the draft. The transaction is completed when the exporter's bank stamps the original letter of credit as accepted. The stamping fee is equivalent to an interest rate.

*Use:* Although BAs emerged to meet the needs of international trade, since the 1980 Bank Act, they can be issued by any public institution or borrower.

***Day-to-Day Loans and Special Call Loans:*** These loans represent the private overnight market. Day-to-Day Loans (DTDLs) are made primarily by chartered banks and other financial institutions to money market dealers who have PRA facilities with the Bank of Canada. DTDLs are being replaced increasingly by special call loans (SCLs), which are overnight loans made by chartered banks to investment dealers.

***Other Chartered Bank Instruments:*** Chartered Banks have created a large variety of financial instruments that are used by individuals, other banks, and institutions. Three types of these instruments are issued in amounts of $100,000 or more and are traded in wholesale markets as follows:

*Certificates of Deposit:* These are issued for long-term deposits at a fixed interest rate.

*Bearer Deposit Notes:* These are a type of security not registered in the owner’s name.

*Interbank Deposits:* These are deposits that one bank deposits in another.

***Eurocurrency Instruments:*** Financial instruments (deposits, loans, or bonds) denominated in a currency other than the currency of the home country are called Eurocurrency instruments (or sometimes "Euro dollars"). The government promissory notes called Canada bills (issued in US dollars) are an example of government Eurocurrency instruments. Note that we shouldn’t confuse the terms Eurocurrency and the Euro.

***Corporate and Finance Company Paper:*** These instruments are issued by large firms and finance companies with good credit ratings. A corporate paper is generally an unsecured promissory note with a specified maturity date. A finance company paper is a note secured by instalment-debt contracts. Both these types of paper, which are sold in denominations of $50,000, are held primarily by institutions such as mutual funds, pension funds, and deposit-taking institutions.

**The Capital Market**

The markets for financial debt instruments with maturities of more than one year are classified as capital markets as well as the market for equities. The purpose of the capital market is to raise capital to finance long term investments in physical capital, i.e., factories, machinery and equipment.

***Bonds:*** A bond is a debt instrument issued by a public entity or corporation. A bond has a stated **par value** (face value) and a **coupon rate** which is paid to the holder one or more times a year. Federal government bonds are considered risk-free.

*Government of Canada Bonds:* These bonds are issued by the federal government, with an array of maturities and in many denominations, and have been sold at auction since 1992. They are held by the Bank of Canada, chartered banks, the general public, and foreigners. Since 1990, the average maturity of the Canadian government debt has risen to more than six years, partly due to changes in the real cost of debt. High real interest rates make short-term debt more attractive. In the fall of 1991, the government of Canada introduced real return (indexed) bonds. In 1998, with the elimination of federal deficits, the government of Canada launched a buy-back program to reduce its debt. There is no national regulator to oversee the market for bonds.

*Other Bonds:* Provincial, municipal, and corporate bonds are included in this category. They are similar to government bonds in many ways (except for risk and some other characteristics) and are less likely to be auctioned. Canada is one of the world’s largest corporate bond markets. Debentures are a special kind of bond which are backed by the future sales or earning power of a corporation. Bonds including debentures are sold to the public via an underwriter.

***Stocks:*** Issued by private corporations, these are shares of ownership. In Canada, corporations rely on bonds and stocks in roughly equal proportion for raising funds, though, since 1991, there has been a tendency to prefer stocks.

**The Market for Derivatives**

Derivatives are a group of new financial instruments derived (created) from existing instruments which are traded in spot markets. The difficulty of predicting future interest rates and the consequent losses to investors due to volatility of interest rates led to the creation of derivative products.

***Futures and Forwards:*** Futures contracts are contracts to buy and sell assets at a predetermined future date. Forward contracts are contracts to trade an asset at a future date at a price agreed to in advance.

***Option:*** An option is the right, but not obligation, to buy or sell an asset on or before a particular date. A call option is an option to buy an asset at a specified price, and a put option is an option to sell an asset at a specified price.

***When-Issued Treasury Bills:*** A when-issued T-bill is a contract to buy or sell, at an agreed-upon price, stated dollar amounts of T-bills, to be sold at the next week's auction.

***Other Derivative Products:*** These include more recently developed derivative products such as: 1) Interest rate **swaps**; 2) separate trading of registered interest and principal of securities **(STRIPS)**; 3) forward rate agreements (FRAs); 4) bankers’ acceptances futures (BAX); and 5) securitization.

 **MULTIPLE-CHOICE QUESTIONS**

1. The overnight rate

a) is also called the bank rate.

b) is the upper limit of the operating band.

c) is the lower limit of the operating band.

d) fluctuates between the upper and lower limits of the operating band.

2. Treasury bill rates are determined

a) in a daily auction.

b) in a biweekly auction.

c) in a monthly auction.

d) in a weekly auction.

3. Open market operations involve

a) buying and selling government securities.

b) buying and selling mutual funds.

c) buying but not selling government securities.

d) buying and selling government and corporate bonds.

4. Which of the following is not used by the Bank of Canada to influence interest rates?

a) Manipulation of government deposits

b) Open market operations

c) Determination of exchange rates

d) The drawdown and redeposit technique

5. To ensure that the overnight rate stays within the operating band

a) both SRAs and SPRAs can be used.

b) only SPRAs can be used.

c) only SRAs can be used.

d) neither SRAs nor SPRAs can be used.

6. The Large Value Transfer System (LVTS) was developed

a) to reduce default risk in financial markets.

b) to reduce systematic risk in the financial system.

c) to enable chartered banks to purchase bonds in larger denominations than $100,000.

d) to enable the federal government to borrow large sums from the Bank of Canada.

7. Provincial and municipal T-bill rates are determined

a) by the central bank.

b) by the federal government.

c) in part by the government of Canada T-bill rates.

d) in weekly auctions.

8. The Eurocurrency market

a) is a market located in London, England.

b) is the market for the Euro.

c) is the market for European currencies.

d) is the market for financial assets denominated in a currency other than that of the home country.

9. Which of the following types of bonds is considered default-risk-free?

a) Federal and provincial government bonds

b) Corporate bonds

c) Federal government and corporate bonds

d) Federal government bonds

10. New financial instruments created from existing instruments traded in a spot market are

a) called secondary market instruments.

b) called retail market instruments.

c) called derivative products.

d) called debentures.

11. Which of the statements about SPRA’s is incorrect?

a) The Bank of Canada buys a treasury bill from and investment dealer and sells it back the next day putting upward pressure on the overnight rate.

b) An investment dealer buys a treasury bill from the Bank of Canada and sells it back the next day putting upward pressure on the overnight rate.

c) The Bank of Canada buys a treasury bill from and investment dealer and sells it back the next day putting downward pressure on the overnight rate.

d) An investment dealer buys a treasury bill from the Bank of Canada and sells it back the next day putting downward pressure on the overnight rate.

12. Which of the statements about SRA’s is incorrect?

a) The Bank of Canada sells a treasury bill from and investment dealer and buys it back the next day putting upward pressure on the overnight rate.

b) An investment dealer sells a treasury bill from the Bank of Canada and buys it back the next day putting upward pressure on the overnight rate.

c) The Bank of Canada sells a treasury bill from and investment dealer and buys it back the next day putting downward pressure on the overnight rate.

d) An investment dealer sells a treasury bill from the Bank of Canada and buys it back the next day putting downward pressure on the overnight rate.

## PROBLEMS

## 1. Distinguish between the following:

## a) Debt securities and equity securities

## b) Call options and put options

## 2. Suppose the Bank of Canada feels that the prices being bid at its weekly treasury bill auction are too low and places a reserve bid. Does this mean that the Bank wants higher or lower interest rates?

## 3. Briefly explain how SRAs can be used to influence short-run interest rates.

## 4. Briefly explain each of the following and how they are related:

## a) The T-bill rate

## b) The bank rate

## c) The overnight rate

5. What observations would you make after examining Figure 4.4 in the text?

**ANSWER SECTION**

**Answers to multiple-choice questions:**

1. d (see page 49)
2. b (see page 51)
3. a (see page 51)
4. c (see pages 51-54)
5. a (see pages 56, 57)
6. b (see pages 53, 54)
7. c (see pages 54, 55)
8. d (see pages 60, 61)
9. d (see pages 63, 64)
10. c ( see page 65)
11. c (see pages 56,57)
12. a (see pages 56,57)

**Answers to problems:**

1.a) Financial instruments can be classified broadly as debt securities and equity securities, depending on the legal obligations of the issuer (borrower). A debt instrument is an obligation of the issuer (borrower) to pay a specified amount (principal amount borrowed plus interest) at a specified date in the future. An equity security gives the holder an ownership interest in a corporation (or business). The holders of equity securities receive dividends.

b) Options are derivative market instruments. An option is the right, but not obligation, to buy or sell a financial asset at a predetermined price (strike or exercise price) until some specified time in the future. A call option gives the purchaser the right to buy an asset at a predetermined price. A put option gives the buyer the right to sell an asset at a predetermined price.

2. This action means that the Bank of Canada wants lower interest rates. The treasury bill price and the treasury bill rate (the interest rate on treasury bills) are inversely related. The higher the price, the lower the rate of interest. The lower the price, the higher the rate of interest. The Bank of Canada feels that the prices are too low, which implies that it wants lower interest rates, not the higher rates.

3.Special Sale Purchase and Agreements (SRAs) can be used by the Bank of Canada to reduce the level of short-term liquidity in the financial system and thereby increase short-term interest rates, the overnight rate in particular. A SSRA involves the sale of securities to chartered banks and their repurchase later. The sale of securities by the Bank of Canada reduces the level of liquidity in the banking system and increases short-term interest rates.

4.a) The T-bill rate is the rate of return on treasury bills. Treasury bills are sold at a discount. The difference between the face value and the purchase price accounts for the return on T-bills. The return, expressed as a percentage of the purchase price, is the T-bill rate.

b) The bank rate is the rate of interest charged by the Bank of Canada on the loans it issues (as the lender of last resort) to members of the Canadian Payments Association. The bank rate is set at the upper limit of the operating band.

c) The overnight rate is the rate of interest on the instruments traded in the overnight market. The overnight rate fluctuates between the upper and lower limits of the operating band.

5. Figure 4.4 clearly reveals that a very large percentage of Canadian Government debt is held either by Canadians or the Bank of Canada. This is significant in that it means that we owe this debt to ourselves.