
I. Introduction

In economics, investment is defined as an increase in the capital stock. This is important since higher capital stocks have been shown to lead to higher economic growth. One of the key questions facing an economy is how to achieve the optimal level of investment. The problem about investment is that firms and/or individuals that want to invest often lack the necessary funds to make the desired level of investment. They often have to acquire the funds from those who have excess funds available. The **financial system** is the large set of institutions that match those individuals who have excess funds and are willing to lend it out (**savers**) with those individuals who need funds to invest (**borrowers**). The financial system allows for greater economic efficiency. The financial system is broken down into two broad categories: (1) Financial Markets and (2) Financial Intermediaries

II. Financial Markets (Direct Finance)

A. How the Financial Market Works

In financial markets borrowers (those who need funds for investment) are able to **borrow directly** from savers (those who have excess funds to lend out).

Saver → Borrower

Generally households are the savers but firms, governments and foreign households and governments could also have excess funds to loan out. Firms and government are the principal borrowers.

In the financial market, borrowers borrow funds directly from savers by selling them **securities (financial instruments)** which are claims on the borrower's future income or assets.

Within financial markets there are two mechanisms by which borrowers can get funds from savers: **the debt market (bond market)** and **the equity market (stock market)**. We will discuss each of these financial markets in turn.

B. The Debt Market (Bond Market)

In the debt market, the saver lends money to the borrower. In exchange, the borrower gives the saver a bond (or a mortgage). A bond is a promise of repayment (a type of IOU). Typically in a bond the following items are clearly specified:

-The principal amount (How much the borrower will have to repay the lender)

- The maturity date (the date by which the borrower must repay the debt). A debt instrument is considered **short-term** if the maturity date is less than 1 year and **long-term** if its greater than 10 years. Maturity dates between 1 and 10 years are said to be **intermediate term**.
- The interest rate (the amount of interest the borrower must pay the lender to borrow the funds)

C. The Equity Market (Stock Market)

An alternative direct method that borrowers can get funds from savers is through the equity market. In the stock market, savers give excess funds directly to borrowers in exchange for shares of ownership (stock) in a company. As part owners of a company, a shareholder is entitled to a share of the profits of the company in proportion to the number of outstanding shares owned which are paid out as **dividends**. For example, suppose a small company has 1000 shares. If an investor owns 100 shares, that investor is a 10% owner of the company which entitles that share holder to 10% of the profits. This method of selling ownership shares in exchange for funds is called **equity finance**.

A key difference between stocks and bonds is that a bondholder is a **creditor** to a firm, whereas a stockholder is an **owner** of the firm. The significance of this distinction is most evident when a company goes bankrupt. When a firm goes bankrupt, any remaining assets are given to creditors (including bondholders) to pay off the debts. If there are assets remaining when all creditors are paid off, then shareholders receive what is left. Usually when a firm goes bankrupt there is nothing left for shareholders and they are entitled to nothing.

Another distinction between creditors and owners occurs during times of great profitability. When profits increase for firms, owners (shareholders) receive larger dividend payments to reflect the company's good fortune. Bondholders, on the other hand do not share in the profits. Their interest payments are fixed by the terms of the bond. Thus they will receive the same amount in interest regardless if the firm is making more profits.

While most are more familiar with the stock market, it is the debt market which is substantially larger. In 2010, the value of debt instruments was \$43 trillion, while the total value of equities was only 17.2 trillion.

D. Structure of Financial Markets

Financial markets can be distinguished by various features: whether or not the debt or equity instrument is newly issued, whether or not the equity instrument trades in a centralized location, and by the term of maturity of the security. We will discuss each of these features in turn:

-Primary Markets and Secondary Markets

Definition: A **primary market** is a financial market in which **new** issues of a security (either a bond or stock) are sold by borrowers directly to lenders. When we are discussing debt or equity finance, these transactions occur in the primary market.

New securities are often sold by investment banks.

Definition: A **secondary market** is a market where previously issued securities are resold. The original issuers do not receive the funds of the transactions in the secondary market.

The New York Stock Exchange (NYSE) and Nasdaq are examples of secondary markets where previously issued stocks are traded. Bond markets trade previously issued bonds.

-Exchanges and Over-the-Counter (OTC) Markets

There are two ways secondary markets can be organized:

Definition: **Exchanges** are where buyers and sellers of securities meet in one location to conduct trade. Examples are the New York Stock Exchange and the Chicago Board of Trade.

Definition: **Over-the-Counter Markets (OTC)** are markets where dealers of securities have an inventory of securities ready to buy and sell to anyone who comes to them. The difference between OTC and an exchange is that there is no centralized location like NYSE. All trades take place via a computer. NASDAQ is an example of an OTC market.

-Money and Capital Markets

An additional way to distinguish between financial markets is on the basis of the term to maturity of the security.

Definition: The **money market** is a financial market in which short-term debt instruments (securities with a maturity less than a year) are traded.

Definition: The **capital market** is a financial market in which longer term debt instruments (securities with a maturity greater than a year) are traded.

E. Money Market Instruments

We saw in the previous section that money markets are financial markets which trade short-term debt instruments. Because the term to maturity is short, investors are very likely to get their funds back and thus they are considered relatively risk-free. In this section, we will briefly discuss some of the principal money market instruments.

1. U.S. Treasury Bills: U.S. Treasury Bills (T-bills) are bonds issued by the U.S. government. They are issued in one month (30 days), three months (90 days), and six month maturities. They

pay a fixed amount at the term to maturity and they pay no interest. Instead, they sell the bond at an initial discount price (set below the amount paid at maturity).

Example: The U.S. government might sell a \$1000 3-month t-bill for \$996.00. You purchase the t-bill today for \$996 and in 3 months you will receive \$1000. The \$4 gain is the “interest” paid for holding the bond.

U.S. treasury bills are the most actively traded, and are the safest debt instrument since there is almost no possibility of default. The government could always raise taxes or issue new money to pay off its debts.

2. Negotiable Bank Certificate of Deposits (CDs): A certificate of deposit is a debt instrument sold by bank to deposits that pays interest. At maturity it will pay back the original amount. Negotiable CDs are those sold in the secondary market. Important source of funds for banks.

3. Commercial Paper: Short-term bonds issued by large banks and large corporations.

4. Repurchase Agreements (Repos): These are short-term loans often made by large corporations to banks.

Example: A large corporation such as Ford may have excess funds. They can use these funds to purchase treasury bills from a bank. The bank will agree to repurchase the T-bills from Ford in the near future at a slightly higher price than what Ford paid for the T-bills. Corporation holds on to the treasury bills (it acts as a form of collateral) until the bank purchases it back. Repurchase agreements are an important source of funds for banks.

5. Federal (FED) Funds: Overnight loans between banks. The interest rate paid on these loans is called the **federal funds rate**. The federal fund rate is an important indicator of the conditions of the banking system. When the rate is high, banks find it difficult to borrow funds.

	Amount Outstanding (2010) (in billions \$)
Negotiable Bank CDs	\$1,833
U.S. Treasury Bills	\$1,773
Federal Funds and Repurchase Agreements	\$1,234
Commercial Paper	\$1,057

E. Capital Market Instruments

Since capital market instruments have a maturity date of greater than one year it is generally considered more risky than money market instruments. Some of the principal forms of capital market instruments include:

- 1. Stocks:** Since stocks have no maturity date (they are just a claim of ownership) they are considered a capital market instrument.
- 2. Mortgages:** Loans for housing, land and other real estate. Largest debt market in the United States.
- 3. Corporate Bonds:** These are long-term debt instruments issued by corporations with strong credit ratings.
- 4. U.S. Government Securities:** These are long-term debt instruments issued by the Federal Government. These are the most widely traded securities and thus the most liquid.
- 5. U.S. Government Agency Securities:** These long-term bonds are issued by various governmental agencies to finance mortgages, farm loans, and other specific purposes. These debt instruments are guaranteed by the Federal Government.
- 6. State and Local Government Bonds:** Bonds issued by the state and local governments are also called municipal bonds. Long-term debt instruments issued by state and local governments are often used to finance schools, roads, and other large infrastructure projects. One advantage of these bonds is that the interest earned by the holders of the municipal bonds is generally exempt from federal and state income taxes.
- 7. Consumer and Bank Commercial Loans:** Loans to consumers and businesses made by banks.

III. Financial Intermediaries (Indirect Finance)

Financial intermediation is a system where borrowers are able to get funds from savers **indirectly**. A typical financial intermediary act as a third party by taking the excess funds from savers and then loaning out these funds out to borrowers.

Savers → Financial Intermediary → Borrowers

Financial intermediation is a far more importance source of financing for corporations than securities markets are.

A. Benefits of Financial Intermediation

Financial intermediation is critical to a well functioning financial system in that it promotes liquidity, risk sharing and alleviates the problems associated with asymmetric information.

- 1. Financial intermediation lowers transaction costs and allows for greater liquidity.**
Lending money on your own entails some transaction costs. Suppose you have excess funds that you wish to lend out. In order to conduct the financial transaction you will have to write up a

contract that will be enforceable. Oftentimes this requires legal advice. Financial intermediaries avoid this cost since they already have lawyers on their payroll who write up contracts for a living. Thus transaction costs are lower for financial intermediaries than for individuals. Since transaction costs are low, there is greater saving and borrowing and liquidity in the market is greater.

2. Financial intermediation may reduce risk exposure.

In financial markets, risk is the uncertainty about the returns an investor will receive. As we will discuss in a later chapter, financial intermediaries such as mutual funds can reduce risk by giving investors access to a diversified portfolio. **Diversification** is the idea that not all assets move together, thus the more assets one has the less risk the individual will be exposed to. Diversification simply captures the idea that one shouldn't hold all their eggs in one basket.

3. Financial intermediation reduces the problem of asymmetric information.

An important problem in the financial system, is that sometimes the lender does not have complete information about the person to whom they are lending funds to make an informed decision. When one party has more information than another party this is known as **asymmetric information**. Asymmetric information creates two types of problems: **adverse selection** and **moral hazard**.

Definition: **Adverse selection** occurs before a transaction, when one party has more information than another party.

The problem in the financial system is that oftentimes the borrower has more information than the lender. In particular, the borrower knows whether or not he is a good credit risk, while the lender does not have this information. What happens is that since the lender does not have incomplete information, he will charge a high interest rate to take into account the possibility that he will lend to a bad credit risk. Borrowers who are good credit risks will not borrow money at the high interest rate, since they know they are good credit risks, while bad credit risks will happily pay the high interest rate. As a result, the only borrowers left in the market are those with bad credit (hence the name adverse selection).

Definition: **Moral hazard** occurs after a transaction, when one party has more information than other party.

Example: Suppose that the borrower knows he will use borrowed funds not for an investment project but to purchase lottery tickets. If the lender knew that is what the borrower was going to do with the money then he would never lend the funds out. Given the possibility of moral hazard (the risk that the borrower will risk doing something immoral with borrowed funds), lenders may be reluctant to lend out funds.

Moral hazard problems are particularly prevalent in insurance. For example, a person who gets insurance may engage in risky behavior since they would be fully covered.

Financial intermediation solves the problems of adverse selection and moral hazard in two ways:

First, financial intermediaries have better resources than individuals to screen out bad credit risks from good ones. That is they have access to more information (like credit reports) thus reducing the problem of adverse selection.

Secondly, financial intermediaries have developed expertise in monitoring parties they lend to, thus reducing the problem of moral hazard.

A. Types of Financial Intermediaries

1. **Depository Institutions** are financial intermediaries that accept deposits (checking, savings or CDs) and use those funds to make loans.

(a) **Commercial Banks:** Banks use funds to purchase government securities and municipal bonds. Also use funds to make commercial, consumer and mortgage loans.

(b) **Savings and Loans (S&Ls) and Mutual Savings Bank:** Similar to commercial banks, in the past there were constraints (such as using funds to make mortgage loans only), but over time these restrictions have been lifted.

(c) **Credit Unions:** Lending institutions, usually centered around an organized group, such as labor unions, firm employees, etc... Primarily make consumer loans.

2. **Contractual Savings Institutions** are financial intermediaries that acquire funds periodically through contractual obligations (lender must pay a certain amount in each period). These institutions pay out funds in the future, and thus have a longer time horizon than depository institutions. They invest their funds primarily in long-term securities.

(a) **Life-Insurance Companies:** Acquire funds through premiums and invest the funds in long term debt and equity instruments.

(b) **Fire and Casualty Insurance Companies:** Acquire funds through premiums to protect against loss from theft, fire, and accidents. Similar to life-insurance companies, except that there is a greater probability of payout, thus they must invest in assets that are more liquid such as U.S. government securities.

(c) **Pension Funds and Retirement Accounts:** Acquire funds through employee contributions and pay out when the employee retires. Since the funds will be paid over a long horizon, these institutions typically invest in corporate bonds and stocks.

3. Investment Intermediaries

(a) Finance Companies: Raise funds selling commercial paper and by issuing stocks and bonds. Funds are then loaned out to consumer who make purchases. For example, many car manufacturers have finance companies which can make auto loans to consumers.

(b) Mutual Funds: Raise funds by selling shares to investors and use the funds to purchase diversified portfolio of stocks and bonds. Investors own the portfolio of assets. The main advantage of mutual funds is that they allow shareholders to hold a more diversified portfolio than the investor could purchase himself.

(c) Money Market Mutual Funds: Similar to a mutual fund, but the pooled funds are used to purchase money market (short-term) instruments only. Safer than a regular mutual fund. Investors can also write checks from their money market mutual fund account.

(d) Investment Banks: These intermediaries do not raise funds or lend it out. Instead they help a corporation sell (underwrite) the securities. Investment banks may buy newly issued stocks and/or bonds from a corporation and then resell them to the public. May also help companies with mergers and acquisitions.