

Part 1. Making Financial Decisions

What kinds of decisions are we talking about?

The field of finance is often divided into two parts: **Corporate** (or **Managerial**) **Finance** which deals with financial decisions made by managers of a company, and **Investments**, which focuses on how individuals or professional investment companies decide how to invest.

This class will look at both parts of finance. While not everyone will be involved in the financial decisions of the company they work for, everyone in business needs to be able to talk to financial managers and understand what they are doing. An even if you are not involved in financial matters at work, you will certainly be making investment decisions over the course of your lifetime.

This course focuses on four major kinds of financial questions:

- How do you determine the financial value of an asset?
- How do you decide if a project is financially worth doing?
- How do companies raise money?
- What strategy should you use when investing?

We will learn the basics of how companies and individuals answer these questions. In this section of the course we will develop some context and background for financial decision-making.

Demanders and Suppliers of Funds

We will begin our overview of financial decisions with the process of raising funds. The word “financing” even means the activity of raising funds. We call those who are raising funds **demanders of funds**. These are some examples of demanders of fund:

- A company is planning to expand its operations into South America and needs \$200 million to pay for the cost of building new stores and to cover operating expenses until sales increase.
- An entrepreneur is starting up a small restaurant and needs to arrange a bank loan to buy kitchen equipment.
- A family has saved up enough for a down payment on a house. Now they need to borrow money to pay for the rest of the cost of the house.

- Voters in Texas have approved a bond issue to build new schools. In order to get the money to build the schools, the State of Texas issues bonds, which is a way of borrowing the money.

While the situations seem different, they actually involve very similar kinds of financial decisions. In each case, the demander of funds needs to determine the options available for raising the funds, how much it will cost, and given that cost, whether it is worthwhile to borrow the money. For example, the company expanding into South America will have to weigh the costs and benefits of issuing stock or bonds or borrowing from a bank. Once they find the cost of raising the \$200 million they will have to assess whether the expected profits from their South American operations outweigh the costs of the loan.

The opposite of demanders of funds are the **suppliers of funds**. They provide the money that the borrowers want. Some examples of suppliers of funds, and the kinds of decisions they must make, are:

- I am working and want to save for my retirement. I plan to invest my money, but which investments should I make? Should I buy stock in the company expanding into South America? Should I deposit my money in a bank that makes home loans? Should I buy school bonds from Texas? I need to make a decision about how much to invest, and what to invest in.
- A life insurance company takes in premiums with the intention of paying out claims later. It wants to invest the money to get a high return without having too much risk.
- A large company has been profitable lately and has accumulated funds. A year from now it will use the money to fund an expansion of its operations, but it wants to find the best place to hold the money until then.

These are just a few examples of decisions by suppliers of funds.

Some Basic Financial Terms

Before we go on we need to discuss a few basic financial terms. These principles are so important that we cannot talk about anything else without understanding what they mean.

What is risk?

In common language, **risk** usually means the chance that something bad will happen. In a financial context, risk often means the same as *uncertainty*; the chance that something other than expected will happen, whether it is better or worse. For example, in the context of stock prices, you might expect to get a return on your investment of 8%, but it could be less than that if stock prices fall (which is bad), or more than that if stock prices increase dramatically (which is good). The problem is that while you expect to earn around 8%, you are not sure exactly what you will get. That is financial risk.

In business discussions, the word “risk” is used in two ways, to mean “something bad happening” or to mean “uncertainty”. You need to pick up the meaning from context. Sometimes people are more specific and refer to “upside risk” which is the possibility something better might happen and “downside risk” the possibility something worse might happen.

What are interest rates?

An **interest rate** is the cost of borrowing money, expressed as percentage of the amount borrowed. If you borrow \$1,000 at a 10% interest rate it means that when you pay back the loan you must pay the \$1,000 plus \$100 in interest ($\$100 = \$1,000 * 0.1$). Interest rates show up all the time in financial transactions, even when the transaction doesn't at first seem like a loan. When you deposit money in the bank, you are lending your money to the bank and the return you get is determined by the interest rate. But also, when you lease a car, you are paying for the use of the car over time, in essence, you are borrowing the money, and so built into you lease payments is an interest rate.

What really matters for interest rates is not the borrowing and lending, but that the financial transaction is taking place over a period of time. When I lend you money, I won't get it back until sometime later, and I could have been doing something else with my money during that time. Since I am giving up use of my money, you have to pay me for that. In effect, interest rates measure the value of time. Interest rates are the cost of a loan because loans take place over time. Anytime you have a financial transaction that takes place over time, look for an interest rate.

When we talk about interest rates it can be a bit confusing, since we sometimes talk as if there is a single interest rate, and yet actually there are a variety of different interest rates. When we say “interest rates” talking about interest rates in general, or “the interest rate”, we mean the average interest rate. The statement “the interest rate was high in the late 1970s”, and “interest rates were high in the late 1970s”, mean the same thing: interest rates in general were higher in the 1970s (compared with other years) but all interest rates in the 1970s weren't necessarily the same.

What are stocks and bonds?

Companies have two main ways of raising funds: by issuing **stocks** and **bonds**. Bonds are like a loan, or an IOU. An investor gives the company money and in exchange the company promises to pay back the money plus interest in the future. The basic difference between a loan and a bond is that the bond can be bought and sold in the market. So if I initially buy the bond from the company, I can later turn around and sell the bond to someone else. The company would then make the payments to that individual.

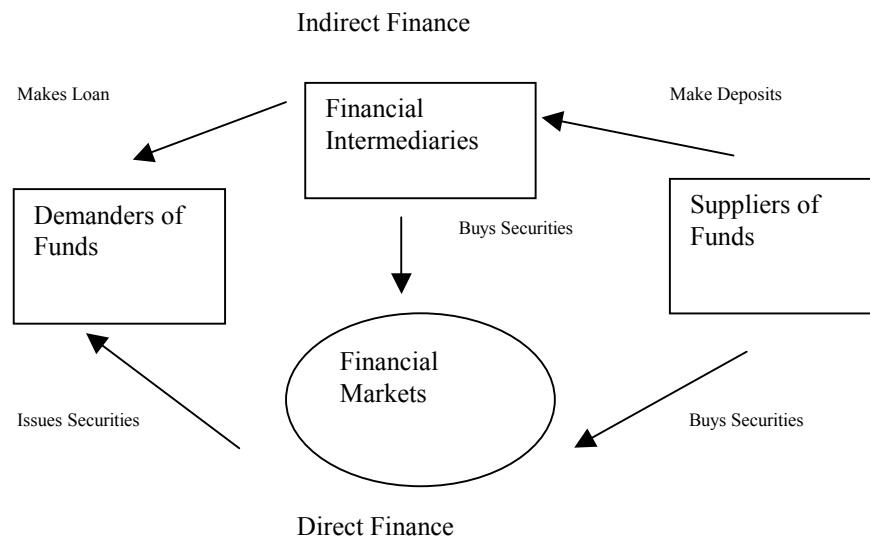
Stock is a different way for companies to raise money. Like a bond, a company issues stock in exchange for funds. However, unlike a bond, stock doesn't promise payments in the future. Instead, owning stock gives you partial ownership of the company, which means that you can get part of the profits the company earns.

The Financial System

The **financial system** is the part of the economy that connects the demanders and suppliers of funds. When this is done directly through financial markets, such as when a company wanting to raise funds sells a bond to a household wanting to make an investment, it is called **direct finance**. However, not all demanders of funds use direct finance. Sometimes financing is done indirectly as when a company borrows money from a bank that gets its money from household deposits. Fundamentally, the same thing is happening, money goes from the household to the firm. The difference is that a third party is always in the middle of the relationship. Institutions that do this, such as banks, are called **financial intermediaries**, because they are “between” the borrowers and lenders. When companies raise funds through financial intermediaries it is called **indirect finance**.

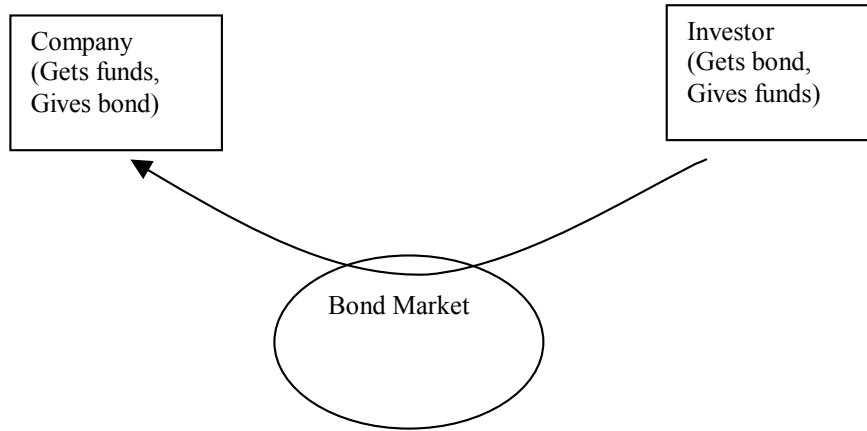
Below we can see the various flows of funds between demanders and suppliers of funds through financial markets and financial intermediaries.

The flow of funds through the financial system



To see how these various connections work, let's go through a few examples of firms and investors being connected through financial markets or intermediaries.

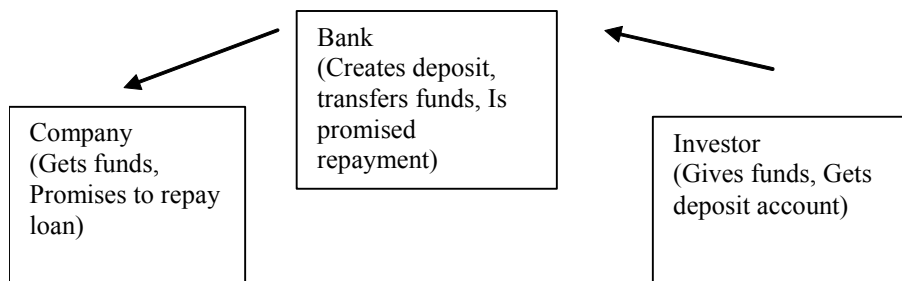
An example of direct finance: An individual buys a bond issued by a company



In this example, a company issues a bond (which would be sold in the bond market). The funds go from the investor (the supplier of funds) to the company (the demander of funds). What the investor gets is the bond, which is a promise to pay the money back in the future. This is considered direct finance because there is not an intermediary throughout the relationship. Even though both the company and the investor will deal with bond dealers in the bond market, the dealers are only involved in the transfer of the bond. Once that is done they are out of the picture.

Over time, the relationship is reversed; the company makes interest payments on the bond, transferring funds back to the investor.

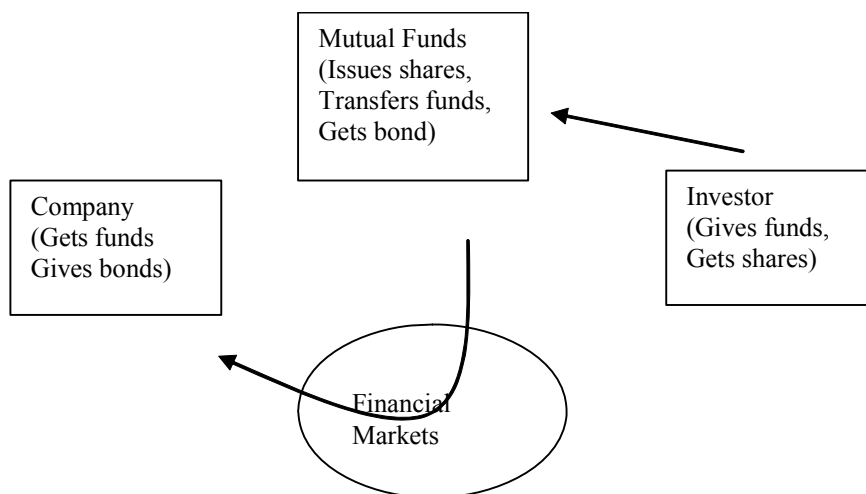
An example of indirect finance: An individual deposits money in a bank and then the bank makes a loan to a company.



In this example, an investor deposits money in the bank and now has a bank account. The bank makes a loan to the company (the bank gives the funds to the company, the company gives them a promise to repay with interest). Just like with the bond there is a transfer of funds from the investor (the supplier of funds) to the company (the demander of funds). The difference is that

the bank acts as an intermediary throughout the relationship. On the other side, the investor (or other investors) provides the funds to the bank. The bank acts both as a demander and supplier of funds. It is a demander of funds when it gets deposits from the investor, and it is a supplier of funds when it makes the loan to the company. Acting on both sides of the relationship is one of the important functions of financial intermediaries and is at the heart of indirect finance.

An example of indirect finance: An investor buys shares in a mutual fund that uses the money to buy bonds from a company.



Mutual funds are a kind of financial intermediary that purchases securities on the behalf of investors (we will see them in more detail later). In this example, the mutual fund specializes in buying bonds. The investor purchases shares of the mutual fund (it gives money to the mutual fund) and the mutual fund takes the money and buys bonds.

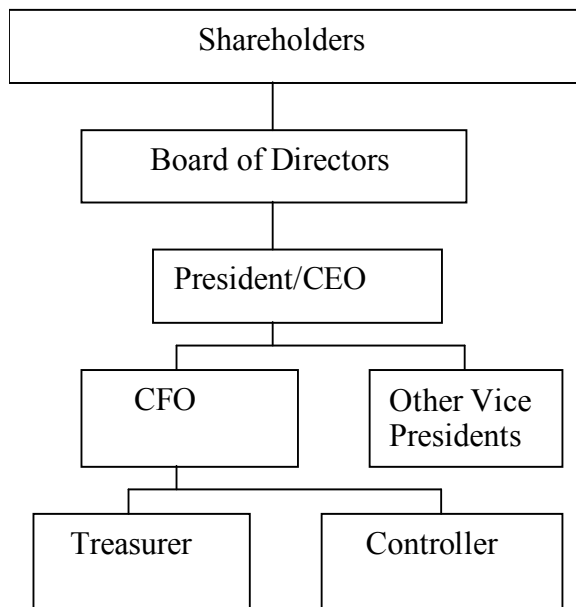
Just as with the previous two examples, there is a transfer of funds from the investor to the company. The difference is that instead of the investor purchasing the bonds directly, the mutual fund purchases the bonds and holds it for the investor, and the investor has a share of the mutual funds. This is an example of indirect finance, since the mutual fund acts as an intermediary between the company and the investor, but there is less intermediation than in the bank example. The return to the investor from holding shares in the mutual fund is very close to the return the mutual fund gets from the bond. As we will see, financial intermediation and indirect finance is a matter of degree, some intermediaries will substantially alter a transaction, while other will be more passive.

Corporate Finance and the Management of the Firm

Many of the financial decisions we will look at in this course are problems faced by business managers. The decisions include finding the best way of raising money for the company, deciding whether to pursue a project, and how to make financial plans. As background, this section will review some of the basic ideas about corporate structure and government.

Where does the finance function fall in the organizational structure of a firm?

Most large corporations have the same basic structure:



At the top of the corporation are the shareholders – the owners of the company. For a small company, the owners of the company are often also the managers of the company. If you own a small furniture store, you are also likely involved in the day-to-day operations of the store. However, for large corporations, there is typically a separation of ownership from management. While the millions of shareholders of General Motors are the owners of the company, they are not involved in the decisions about which cars to produce and how much to charge for them. In effect, they hire managers to run the company for them. The top manager of the company is the President or Chief Executive Officer (CEO) (sometimes these positions are split, sometimes they are held by one person).

Of course, the millions of shareholders cannot get together to decide on who to hire for CEO, so instead, they choose a board of directors to do this for them. The board of directors do not take

part in the day-to-day activities of the firm, but are there as representatives of the shareholders to supervise the management team. The board may include some members of top management, but should also include individuals from outside the company.

Underneath the CEO are the Vice Presidents for various parts of the company, such as marketing and operations. The Vice President for Finance is often called the Chief Financial Officer (CFO). This individual is responsible for all financial aspects of the company and for the financial implications of the company's strategy.

How accounting differs from finance.

For large companies, the financial operations of the firm are usually split into two parts. The accounting function is concerned with keeping records of the financial activities of the firm. The head of the accounting department is the Controller. The other function is the financial management of the firm, which includes cash management, securities issuance, and investor relations. This head of this department is the Treasurer. Because the accounting function requires specialized knowledge in financial records, most individuals in the accounting department have majored in accounting, while those in the treasury department often major in finance or accounting, or have an advanced business degree, such as an MBA.

Accounting classes tend to focus on the rules of recording financial data. This is a very important role and generally it is here where most non-financial managers in a large company will interact with managers from the financial side. Finance classes focus more on evaluating projects and making financial decisions, using data from accounting and theory from economics.

The Two Big Ideas of Finance

Finance actually has more than two ideas (otherwise this would be a much shorter course) but there *are* two ideas that show up again and again as we look at different financial questions. I will introduce these ideas here; later, we will develop each idea more extensively.

The Time Value of Money

Whenever we are looking at an investment or a financial project we are comparing money at different points in time. For example, an investor puts \$10,000 in an account for her child's college education. She expects to get \$15,000, ten years from now. Is this a good rate of return? Or, a company is introducing a new product that has development costs of \$5,000,000 but should earn \$1,500,000 for the company for the next four years. Is this a worthwhile project?

In each of these examples, we are comparing dollar amounts at different points in time. A basic principle is that money has a "time value", that is, money paid today is better than the same amount of money paid in the future. If we were given the choice between \$10,000 today and \$10,000 next year, we would pick \$10,000 today because at the very least we could put the money in the bank and earn interest and have more than \$10,000 next year.

So, we know that money today is better than money in the future. But exactly how much better? Being able to determine that is one of the basic math skills in finance. We will spend a significant amount of time in this course learning how to do that calculation and then applying that knowledge to many different financial decisions including evaluating rates of return in investment decisions and business projects.

The Risk-Return Tradeoff

Most financial decisions involve payments in the future and one of the characteristics of the future is that it is uncertain. If the \$10,000 savings for college is invested in stock, the future value will depend on what happens to stock prices. And while the company thinks that the new product will generate \$1,500,000 in earnings, they can't be sure until they start selling it. Somehow this uncertainty needs to be incorporated into their decisions.

Our general assumption is that people do not like uncertainty (or risk) and will pay to avoid it. As Las Vegas shows, this is not always the case. But it does seem to be a fundamental characteristic of financial markets. To get people to make a riskier investment you need to offer them the expectation of a better return to compensate for this risk. This pattern, that investments with more risk tend to offer a higher expected return, is called the risk-return tradeoff. We will use this idea when evaluating whether we should do a specific project or when choosing the kind of investments we should make.

One final comment, the higher expected return does not mean the investor is guaranteed to get a better return. Rather they get a higher expected return in a *statistical* sense. We will see what this means precisely in a later part of the course. For the moment, you can think about it as high-risk investments offering a higher *average return*, but the actual return you get could turn out to be higher or lower than average.