

An overview of the financial system and the role of financial institutions

A. Three Goals of the Financial System

I. The first goal of the financial system (FS) is to facilitate the flow of funds from savers (entities with a surplus of funds) to investors (entities with a deficit of funds).

Before going any further, we need to first remember the distinction between real assets and financial assets.

A real asset is an entity that generates a flow of goods or services over time. Examples include land, people, factories, inventions, business plans, goodwill with consumers, reputation. Anything that generates a flow of goods or services counts. Key point: *real assets need not be tangible*.

A financial asset is a legal contract that gives its owner a claim to payments, usually generated by a real asset. Examples include currency (\$), stocks, bonds, bank deposit, bank loans, options, futures, etc.

Ultimate investors *sell* financial assets to savers; they use the proceeds to *buy* real assets (buying real assets is the same thing as investment).

Sometimes people sell financial assets to finance consumption too!

Given this first role, the FS is the place where savers (or, more generally, economic agents with a surplus of funds relative to their immediate need for those funds) meet investors (or, more generally, economic agents with a deficit of funds relative to their immediate need for those funds).

The financial system channels funds from savers to investors. In equilibrium, savings = investment. (This equation has to be true globally but not for individual countries. For example, in the US savings < investment because foreigners are financing a chunk of US investment. That's what a trade deficit implies.)

Important aside: the term "investors" is often used loosely, and we will often use the term loosely in this class. When a firm builds a factory or when a person buys a house, that is investment. When a person buys stock, that is, strictly speaking, savings. However, the purchase of a share of stock is commonly called investment, and stockholders are called investors.

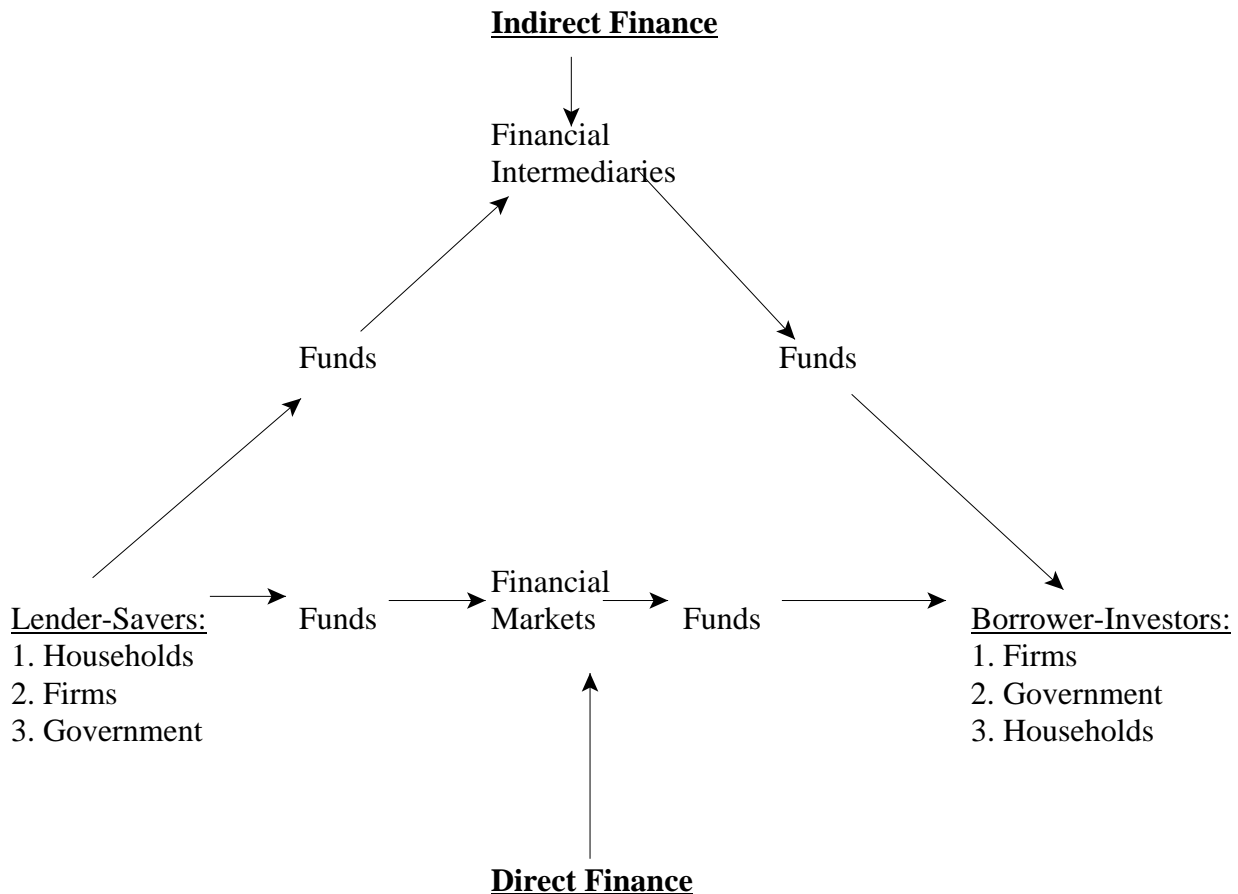
Agents can invest using their own funds, using indirect finance, or using direct finance.

When agents invest out of their own funds (i.e. by spending past accumulated savings), they bypass the FS entirely (although they usually use the FS while savings are accumulated).

When agents use indirect finance, funds come from a financial intermediary, which are then invested (or spent on consumption goods). A financial intermediary is a firm that pools the savings of many agents and then passes those funds through to agents that want to invest them. The intermediary is the *middleman*, not the ultimate source of funds!

When an agent uses direct finance, funds are provided to the investors directly, without the use of an intermediary. For example, firms sometimes sell shares of stock directly to the public in an IPO.

Flow of funds through the FS:



II. The second goal of the FS is to allow economic agents to share risks.

There are many risks that have very high costs but low likelihood of occurring such as hurricanes, early death, failure of a business (maybe these are not so rare!), collapse of the WTC. Risk averse people prefer to share these risks rather than bear them alone.

Question: How does the FS allow agents to share these risks?

III. The third main goal of the FS is to generate liquidity.

There are two notions of liquidity, both of which are important.

The market liquidity of an asset (real or financial) is the ease with which it may be traded. Here are the key characteristics of a liquid assets:

- Standardized
- Value is well understood by all
- Many potential buyers and sellers

Question: Rank the following financial assets by their liquidity:

- Share of IBM
- Bond issued by IBM
- Loan from Citibank to a small business
- Your car
- Your house

Intermediaries such as brokers and dealers enhance market liquidity.

The second notion of liquidity, funding liquidity, is the ability of an entity to come up with cash on short notice. For example, a firm holding cash on its balance sheet, or a person with cash in their wallet, has a high degree of funding liquidity.

Firms and households need funding liquidity to have the option to make investments on short notice. The financial system supplies this liquidity with currency (government supplied), demand deposits (supplied by banks) & lines of credit (also mainly supplied by banks).

This course is about the role that financial services firms (FSF) play in allowing the financial system to achieve its three goals, and how FSFs make a profit filling this role.

B. Financial Contracting

To facilitate flows of funds from savers to investors, the financial system creates financial assets. Financial assets are merely legal contracts between suppliers of funds (savers) and users of funds (investors). These contracts specify the cash flow rights and control rights of the supplier and user of funds. The art of the deal, at least in finance, is knowing how to write these financial contracts efficiently and, of course, how to value them.

Question: What is the relationship between cash flow rights and control rights? To get a start toward an answer, think about the difference between these two dimensions for common stock and debt.

A question that will arise often in the course: Why do financial contracts look the way they do? And, how do FSF *make money* writing and efficiently enforcing financial contracts. The answer comes from *three key costs of financial contracting*.

I. Transactions costs

It would be prohibitively expensive for large firms to raise enough funds to finance their investments if they had to contract individually with thousands of people. Instead, transactions costs are minimized by hiring an FSF. Example: Investment banks help reduce the need for large firms to contract with their many owners by writing a standard contract (e.g. a share of stock) and then marketing those standardized contracts on behalf of that large firm.

Innovative ways to lower transaction costs can generate profits. Example: Internet IPOs auctions may threaten the old-style, relationship-based investment banking approach of book-building. Another example, which we will study later, is Prosper.com, and online lending company that brings savers and investors together without a bank in the middle.

II. Adverse Selection

Preliminary concept: When one party to a financial transaction has better knowledge than the other, there is asymmetric information.

Adverse Selection tends to occur whenever there is asymmetric information. Adverse selection occurs when seller of a financial asset knows more than the buyer. Under these conditions, the seller will try to sell low quality assets and hold high quality ones.

Questions for discussion: How does adverse selection affect life insurance, lending, and securities trading?

One obvious solution to adverse selection problem: eliminate the asymmetric information.

Question: How do FSFs solve adverse selection problems in life insurance, lending, and securities trading?

Innovative ways to reduce adverse selection generate profits. For example, insurance companies use credit scores to price auto insurance.

III. Moral hazard

Moral hazard is the risk that one party to a financial contract may have a strong monetary incentive to break that contract because they can conceal their actions (again, asymmetric information can worsen moral hazard problem).

Solutions to moral hazard problems include monitoring to restrict “bad behavior” and contracting devices designed to minimize the incentives to chisel.

Examples of monitoring: covenants, board of directors

Examples of contractual schemes to improve incentives: co-payments and deductibles, collateral and limits on leverage. (Question for sports enthusiasts: Why do you think baseball contracts are guaranteed, whereas football contracts are not? Hint: Which sport suffers from the greater moral hazard problem?)

Question: What is the moral hazard problem that occurs when you buy fire insurance? What about when you borrow money? How do FSFs deal with the problem?

Innovative ways to reduce moral hazard can generate profits. Example: auto loans in which the borrower’s ability to drive the car depends on their remaining up-to-date on their payments.

IV. Much of the value-added, or profits, that are created in the FS industry arise from clever ideas that reduce the transactions costs, adverse selection costs and moral hazard costs inherent in financial contracts.

If you think hard about these problems and can come up with novel solutions, you can be successful.

C. Creating and Enhancing the Market Liquidity of Financial Assets

I. Liquid assets are more valuable than illiquid assets. Hence, if an FSF can buy a financial asset and increase the liquidity of the assets, they have made a profit.

II. Where does liquidity come from?

Information is the key component for creating liquidity of a financial asset. If the owner of a financial asset knows more about its value than anyone else, they will have trouble selling that asset at a fair price. This is another form of the adverse selection problem.

Purchasing a used car is a classic example of adverse selection.

FS industry can enhance liquidity by disseminating information to potential buyers.

1. There are cases where FS firms disseminate information to enhance liquidity:

Detailed prospectus for an offering
Corporate debt rated by Moody's or S&P

2. What makes dissemination of believable information possible?

Reputation capital: Future profits that would be lost if the firm provides bad information

Financial capital: Current accumulated profits that would be lost

Private regulation: e.g. Public Accounting Firms (who have substantial capital...)

Government regulation: The SEC enforces rules regarding disclosure

3. There are other times when FS firms choose to keep secrets and hold onto a financial asset rather than try to enhance its liquidity and sell it.

D. Risk-Sharing / Risk management

I. FSFs specialize in assessing and managing risk. Thus, many firms will delegate this function to an FSF. An obvious example is the insurance industry. A less obvious example from banking is the letter of credit. A letter of credit is a promise by the issuer (the bank) to make good on the obligations of a beneficiary (the party paying a fee to the bank) if that beneficiary fails to perform.

Commercial letters of credit are commonly used to remove the risks of non-payment in import/export industries.

Standby letters of credit are used to shift risk to the bank in other business contexts.

Example: commercial paper standby letters of credit allow relatively risky companies to issue these highly liquid, short-term debt obligations that otherwise would not be able to access this market.

Another way that FSFs use risk management techniques to enhance liquidity is through credit enhancement. A simple example of credit enhancement: e.g. a parent's co-signing their children's credit card.

Key point: FSF must maintain good reputation for high credit quality to play this role. Both financial and reputational capital are valuable assets for risk management function, just as they are in information production and dissemination. In addition, FSF must know how to manage the risks that they assume efficiently. Life insurance companies must understand mortality risks, banks must understand the risks that borrowers will fail to pay, and so on.

We will therefore study in detail some of the core concepts in risk management, especially as applied to banking.

II. The concept of risk-sharing and liquidity creation are closely linked. As we saw, asymmetric information is a key barrier to liquidity. One way that FSFs create liquid financial assets is by splitting a financial asset into two: one that concentrates all of the risk and remains illiquid, and the other that is relatively safe and therefore liquid. Because liquidity is so valuable, this process adds value and can therefore be profitable. We will see this when we study *securitization* later in the course. We will also see how this process went awry in recent years (e.g. the subprime debacle).

Question: Why is a safe asset likely to be very liquid?

E. The Different Kinds of Financial Services Firms (for more details, see Chapters 1-6 in the textbook)

I. Depository Institutions

These institutions create financial assets to fund investment (and sometimes consumption); they raise funds by selling financial assets to ultimate savers.

Example: Banks pool the savings of agents with surplus funds (deposits), and then lend those funds out to agents with deficits of funds (loans).

The depository institutions are commercial banks, S&Ls, and credit unions. A key function of depository institutions is asset transformation. Asset transformation occurs when the assets (left-hand side of the balance sheet) have low liquidity, but the deposits (main component of the right-hand side of banks' balance sheets) have high liquidity.

Question: How do the reputation and financial capital of the bank help it transform illiquid loans into liquid deposits? What is the role of the government in providing asset transformation?

Depository institutions bundle all three functions of the financial system.

Creating financial assets (bank deposits, loans)
Enhancing liquidity (asset transformation)
And risk management (diversification of the loan portfolio, holding capital, trading)

Commercial banks in particular provide many additional services that we will study in detail throughout the course.

II. Finance companies

Finance companies are very much like depository institutions, with two key differences: (1) their liabilities are composed of commercial paper and other debt securities rather than deposits; (2) they are regulated very lightly, in contrast to the depositories.

We will discuss later in the course why depositories in particular are regulated more intensively than other FSFs.

Often finance companies are subsidiaries of manufacturing firms (e.g. GE capital, Ford Motor Credit Corporation, General Motors Acceptance Corporation). These finance companies often make loans and leases to help sell the firm's manufactured goods.

III. Venture capital firms

Venture capital firms are the least regulated and smallest (in aggregate) of the financial intermediaries. They differ from the other two classes in the kinds of companies that they finance. Firms that are very risky and potentially very rapid growth are most likely to draw interest from venture capitalists (VC).

VC firms go beyond the financing role of other intermediaries and get intimately involved in the management of the companies that they invest in.

The ultimate goal of the VC is to allow the firm to grow to sufficient size to allow it to issue shares of stock to the public, or to have some else (such as an competitor or a major customer) acquire the whole firm. At that point, VC can use their capital to finance new start ups.

IV. Securities firms and Investment banks

The securities industry is involved in brokerage services for both the primary and secondary securities markets. The primary securities market is where corporations first sell securities; the secondary securities market is where holders of previously issued securities trade those securities amongst themselves (e.g. NYSE).

The key functions of securities firms are:

-*Securities Underwriting*: Marketing and distributing new issues of debt and equity for corporations.

-*Brokerage and Market Making*: In market making, a securities dealer holds an inventory of a security and stands ready to buy the security from anyone at the bid price, and sell the security at the ask price. Other firms act strictly as brokers, that is, agents that conduct trades on behalf of customers.

-*Trading*: This activity is similar to market making, although the firm may be engaged in speculating about the direction of price change.

-*Mergers & Acquisitions (M&A)*: Assisting firms wanting to expand by buying another company, or wanting to sell out to another company. This entails finding merger partners, provide advice about deal pricing and structure, underwriting securities to facilitate a deal, and so on.

V. Insurance companies

There are two main kinds of insurance companies, life/health and property&casualty. Both kinds tend to hold corporate debt securities (often privately-placed debt) as their main asset.

For life/health companies, their main liability is the obligation to pay health and death benefits, and for P&C companies, the main liability is the obligation to pay claims on property and casualty insurance policies. Assets are purchased from the proceeds raised from premiums on insurance policies.

VI. Mutual funds

Mutual funds are FSF that pool the resources of individuals and firms and invest those funds in a large, diversified portfolio of financial assets.

There are many kinds of mutual funds, the differences having to do with the kinds of financial assets they buy, the way they are regulated, and the way they are taxed.

Money market mutual funds: Buy short-term assets such as commercial paper

Bond funds: Buy medium and long-term bonds (corporate and government)

Stock funds: Buy stocks.

Pension funds: Various kinds, but all receive preferential tax treatment

Mutual funds are required by regulation to disclose their investment objectives in a prospectus, to disclose their holdings at regular intervals, and are limited in the degree of short selling that they can do.

Hedge funds: These are pooled investment vehicles like mutual funds but they are very lightly regulated. Hedge funds usually raise funds from wealthy investors and also from pension funds, University endowments and state funds. They avoid most regulations on disclosure requirements and are unrestricted in the kinds of assets that they can hold. Also, hedge funds face no restrictions on short positions. We will discuss hedge funds in detail later in the course when we study the demise of LTCM.

VII. Rating Agencies

Rating agencies are firms such as Moody's and S&P that rate public securities. Their main function is to provide a standardized assessment of the default probability on debt securities.

VIII. Government-Sponsored Enterprises

These are the two mortgage companies, Fannie Mae and Freddie Mac, as well as a set of 12 privately-owned Federal Home Loan Banks.

Fannie and Freddie support the provision of mortgage credit by buying and/or guaranteeing mortgages. By taking this risk from the private sector, the GSEs grease the wheels of the securitization process (more later). They also have implicit and, as of July 2008, explicit support of the US Treasury, which allows them to provide their services at below-market rates. This is good for their shareholders (and mortgage borrowers) but bad (expensive) to taxpayers... It will be interesting to see if they survive the semester in their current form (I am betting they won't).

The 12 Federal Home Loan Banks are owned by their members, which are financial institutions (mainly saving institutions). They borrow in the capital markets and lend funds to their members. Because they borrow at subsidized rates due to government backing, these banks also subsidize mortgage lending.

F. In class Exercise: Describe how and the extent to which each kind of FSF helps the financial system fulfill each of its three key functions.

	Creation of Financial Assets	Liquidity Creation	Risk-Sharing / Risk Management
Depository Institutions			

Finance Companies			
Venture Capital Firms			

	Creation of Financial Assets	Liquidity Creation	Risk-Sharing / Risk Management
Securities firms / Investment Banks			
Insurance companies			
Pension Fund and Mutual Fund Companies			

	Creation of Financial Assets	Liquidity Creation	Risk-Sharing / Risk Management
Rating Agencies			
GSEs			

G. The lines between these firms are blurring!

The descriptions above of the different kinds of FSFs should be viewed with some caution because the lines between these firms are increasingly becoming blurred.

In the old days, the lines between depositories and the other FSFs were strictly drawn by regulation. These regulations have been almost completely eliminated, and the financial industry is taking advantage of the new environment.

For example, JPMorganChase is not only one of the largest traditional commercial banks in the world, it is also a market leader in underwriting securities. Citigroup, which was formed by the merger of Citicorp and Travelers in 1998, owns a major commercial bank (Citibank), investment bank (Salomon Smith Barney) and continues to have some insurance businesses, although it sold off a major piece of that business recently. This firm could not have existed legally in the United States during the 1980s.

Even without financial conglomeration, the lines have been blurred by innovation. For example, the cash-management accounts offered by securities firms like Merrill-Lynch look an awful lot like bank deposits. Other securities firms such as Goldman Sachs have recently become important lenders to large corporations, a business formerly dominated by commercial banks.

While the institutional feature of FSFs have changed and will continue to change, the key functions (creation of financial assets, liquidity creation, risk-sharing) do not.