PRINCIPLES OF BANKING AND FINANCE

PART I: FINANCIAL SYSTEMS

Chapter 2: Introduction to financial systems

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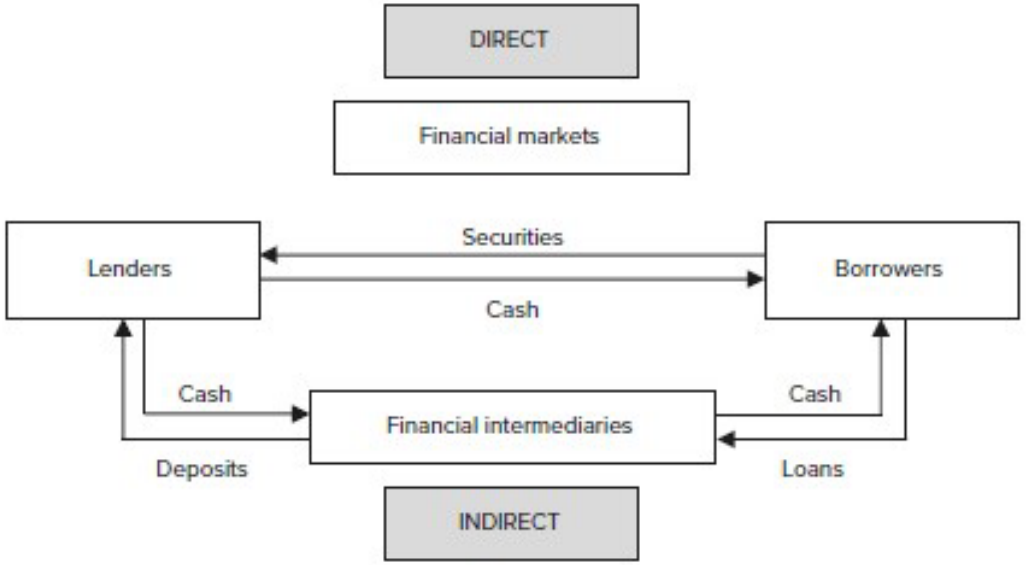
Function of financial systems

The main functions of the financial systems are:

- **Channeling of funds**: provide mechanism to transfer funds from unit in surplus (lender-savers) to units in shortage (borrowers-spenders) of funds → facilitate lending and borrowing
  - **Direct finance**: direct borrower-lender relationship in the financial market through securities
  - **Indirect finance**: intermediary helps to transfer funds
- Enable wealth holder to **adjust composition of their portfolio**:
  - Lender-savers do not frequently have profitable investment opportunities, while borrowers-spenders have investment opportunities but lack of funds
  - Lender-savers may want to invest excess of income or to adjust the composition of their wealth (reconciliation of preferences for current vs future consumption
- Provide payment mechanism (**monetary function**)
  - Introduction of money allows savers and spenders to separate the act of purchase and sale, helping them to overcome the problem of barter ("double coincidence of wants")

Function of financial systems

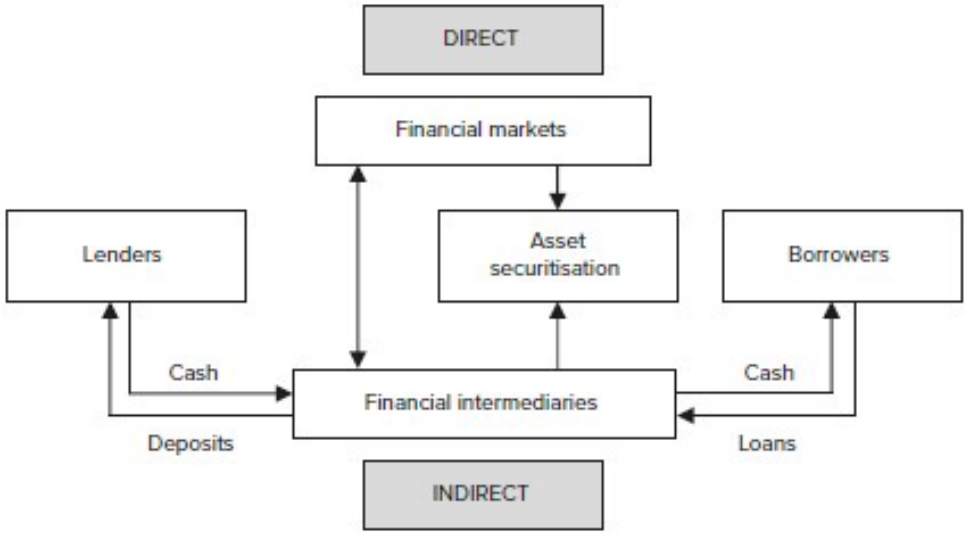
Figure 2.1. – *Functions performed by a financial system*



Function of financial systems

- **Possible extra-layer of financial intermediation**: financial intermediaries hold financial claims issued by other financial intermediaries → new business model based on **securitization** (process of transforming illiquid financial assets into marketable securities

Figure 2.2. – *Functions performed by a financial system with securitization*



Structure of financial systems

- **Financial markets**:
  - Funds are moved from who has excess of funds to who has investment opportunities → contribute to increase production and the efficiency of overall economy. Securities are traded
- **Securities (financial instruments)**:
  - Financial liabilities for firm/individual that sells them; financial assets for the buyer
  - Debt instruments (**bonds**): securities that promise periodic payments for a period of time
  - Equity instruments (**shares** or **stocks)**: securities that represent a share of ownership in the firm
- **Financial intermediaries:**
  - Economic agents specialized in buying and selling financial securities (easily marketable) and contracts (cannot be easily sold: marketed)
  - Accept deposits and make loans
  - In recent years, growing of other financial intermediaries such as pension and mutual funds, insurance companies, venture capital and private equity firms at the expense of banks

Taxonomy of financial intermediaries (US) – depository institutions

Intermediaries with a significant proportion of funds derived from customer deposits

- **Commercial banks**: largest group of financial intermediary
  - Accept deposits (liabilities): checkable, savings, time deposits
  - Make loans (assets): consumer, commercial and mortgage loans
  - Buy securities
  - Consolidation over last decades
  - Performances improved throughout most of 1990s, deteriorated in early 2000s and during 2007 financial crisis
  - In 2020: 7,283 commercial banks, with aggregate total assets of 20.5$ trillion and 10.86% of average industry ROE

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Taxonomy of financial intermediaries (US) – depository institutions

Intermediaries with a significant proportion of funds derived from customer deposits

- **Savings and loans associations (S&Ls)**: second largest group
  - thrift institutions concentrated mostly on residential mortgages by acquiring funds through deposits
  - Grew very rapidly in the 1950s and 1960s, but the dramatic surge of interest rates due to the change in monetary policy of FED (early 1980s) had huge impact: S&L had negative interest spreads in funding fixed-rate long-term residential mortgages; they had to pay more competitive interest rates on savings deposits
  - Solution: allowed to expand deposit-taking and asset-investment powers → aim: safer and more diversified institutions; but few took more risk to improve profitability (ex: Texas) → large number failed, and new legislation has been adopted (FIRREA, 1989)
  - In 2020: 939 associations, with aggregate total assets of 1.4$ trillion

Taxonomy of financial intermediaries (US) – depository institutions

Balance sheet structure of US bank insured in Federal Deposit Insurance Corporation (commercial and S&Ls) reflects main assets and liabilities of the system

Table 2.1. – *Trend in the size and number uf US depository institutions*

Total assets	*21,883,869*	*Total liabilities and capital*	*21,883,869*
Total loans and leases	10,853,135	Deposits	17,823,558
Less: reserves for losses	236,601	Other borrowed funds	1,091,678
Net loans and leases	10,626,535	Subordinated debt	68,241
Securities	5,112,383	All other liabilities	672,673
Other real estates owned	4,629	Equity capital	2,227,720
Goodwill and other intangibles	387,112		
All other assets	5,753,210		
		Notional amount of derivatives	165,712,669

Source: Table created using data from FDIC Quarterly Banking Profile (http://www.fdic.gov)

Taxonomy of financial intermediaries (US) – depository institutions

Intermediaries with a significant proportion of funds derived from customer deposits

- **Credit unions**:
  - non-profit institutions mutually organized and owned by their members (depositors)
  - Primary objective; satisfy depository and lending needs of their members
  - Members deposits used to provide loans to other members, earnings used to pay higher rate to member depositors
  - In 2020: 5,204 credit unions, with aggregate total assets of 1.9$ trillion

Taxonomy of financial intermediaries (US) – contractual savings institutions

Intermediaries that acquire funds at periodic intervals on contractual basis.

- **Insurance companies**:
  - Primary objective: protect individuals and firms (policyholders) from adverse events
  - Receive premiums, promise compensation if particular events occur
  - **Life insurance**
    - Protection against death, illness, and retirement
    - Today emphasis shifted to annuities: contracts that accumulate funds and/or pay a fixed/variable income stream
    - In 2020 total cash and invested assets of $9.7 trillion; $1.28 net premiums
  - **Property and causality insurance**
    - Protection against personal injury and liabilities (ex: accidents, theft, fire)
    - Primarily auto, homeowners, and commercial insurance
    - Hold more liquid assets

Taxonomy of financial intermediaries (US) – contractual savings institutions

Intermediaries that acquire funds at periodic intervals on contractual basis.

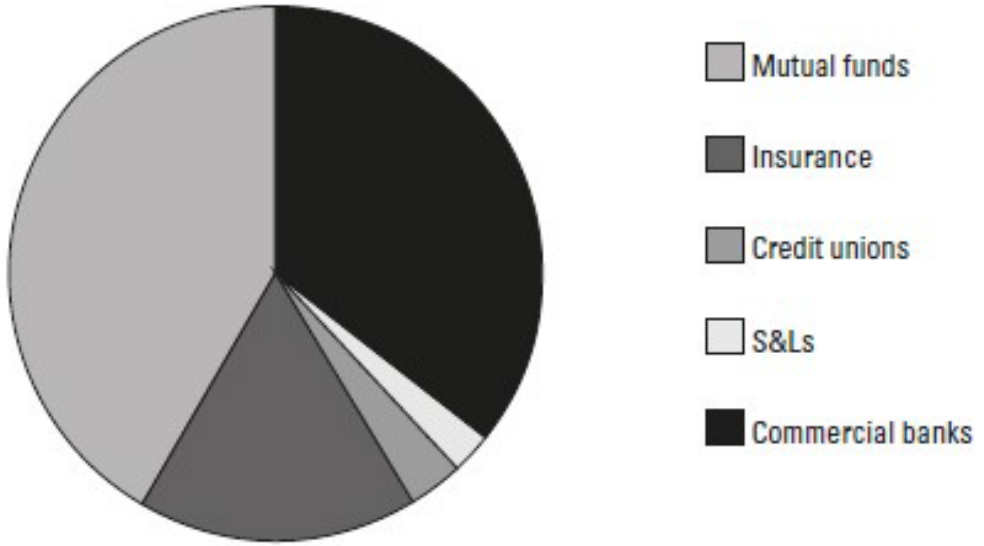
- **Pension funds**
  - Provide retirement income (form of annuities) to employees covered by a pension plan
  - Receive contributions form employers and employees
  - Invest in corporate and government bonds, and stocks
  - Because of different relevance of prose pension scheme, very important in US and UK, less in France, Germany, and Italy

Taxonomy of financial intermediaries (US) – investment intermediaries

- **Mutual funds**
  - Pool resources and invest in diversified portfolios of bonds, stocks and money market instruments
  - Two main advantages:
    - Opportunities for small investors to invest in financial securities and diversify risk
    - mutual funds take advantage of lower transaction costs
  - Two segments:
    - Long-term funds: comprises bond funds, equity funds, and hybrid funds
    - Short-term funds: money market mutual funds, contain various mixes of money market securities
  - In the US, mutual funds are the most important financial intermediary in term of asset size

Taxonomy of financial intermediaries (US)

Figure 2.4. – *Total assets by type of financial intermediaries in the US ($ trilion, 2020)*



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Taxonomy of financial intermediaries (US) – investment intermediaries

- **Finance companies**
  - Make loans to individuals and corporations by providing consumer lending, business lending, and mortgage financing; not accept deposits
  - Three major types: sale finance institutions, personal credit institutions, business credit institutions
- **Investment banks:** assist corporations or governments in the issue of new debt or equity securities (origination, underwriting, and placement of securities; financial advisory on corporate financial activities
- **Securities firms:** assist in the trading of existing securities in the secondary markets.
  - Two categories: **brokers** (agents who match buyers with sellers, earn commissions), **dealers** (link buyers and sellers by buying and selling)
  - Main service is **securities orders:** market (trade at best price currently available) and limit (trade at best price currently available if not worse than the limit price specified) order

Taxonomy of financial intermediaries (US) – Retail and wholesale banks

- Another way to distinguish financial intermediation based on different functions they perform
- Difference on size
- **Retail banks** traditionally provided intermediation and payment services to individuals and small businesses → large number of small value transaction
- **Wholesale banks** deal with smaller number of larger value transaction (consists mainly in investment banks)

Taxonomy of financial intermediaries – Financial intermediaries around the world

Table 2.2. – *Equivalent names of depository institutions*

US	Commercial banks	S&L	Credit Unions	Institutions not found in US
UK	Commercial banks	Building societies		
Japan	Ordinary banks		Co-operative banks (Credit Unions and Associations)	Trust banks Long-term credit banks
France	Commercial banks		Mutual and Co-operative banks	Savings banks
Germany	Commercial banks		Co-operative banks	Savings banks
Your country				

Nature of financial instruments (securities) – Bonds

Promise payment of given sums to investor

- **Zero coupon bonds**: at current time, borrower receives the bond price and promises to pay one specified nominal sum to the lender at a one specified future date. Known also as discount bonds
- **Coupon bonds**: borrower makes regular payments (coupon or interests) until specified date (maturity) when the amount borrowed is repaid
- **Perpetual bonds** (consols): never mature, simply pay coupons
- **Floating rate bonds**: coupon rates vary over bond's lifetime (generally premium over market interest rate)
- **Index-linked bonds**: coupon and principal grow in line with inflation (real risk-free securities)
- **Callable, puttable, convertible bonds**: bonds with options embedded
- **Foreign bond**: issued by borrower in a country different from borrower's country of origin
- **Eurobonds**: bonds denominated in the currency of one country but sold/traded in another country

Nature of financial instruments (securities) – Bonds, notes and bills by issuer

Three main classes of institutions in the US:

- **Government notes and bonds**: issued by US Treasury to finance national debt
  - Notes have 1 to 10 year maturity, bonds 10 to 20 years.
  - Theoretically free of default risk → pay lower interest rates than corporate bonds
  - Treasury bills: money market securities, original maturity less than one year, no interests
- **Municipal bonds**: issued by local, county or state governments to finance public interest projects
  - Not default-free and not as liquid as Treasury bonds: secured by their own revenues and not guaranteed by central government
  - However, pay lower interests: interests are exempt from federal taxation
- **Corporate bonds**: issued by large corporations when in need of long-term financing
  - Usually make interest payment twice a year
  - Not risk-free, higher interest rates

Nature of financial instruments (securities)

Default risk and bond rating

- When borrower is unable to meet obligations, borrower is said to be in **default** → bondholder has a senior claim on borrower's assets
- Likelihood of default will affect the terms on which individual are willing to lend → higher probability of default, higher interest rates
- Certain organization help characterize the default by providing credit ratings

Term structure of interest rates

- Also term maturity affects interest rate: bond with identical risk may have different interest rates because of different maturities
- **Yield curve** plots interest rates with different maturity but same risk. It can be
  - Upward: long-term rates above short-term rates, it is the usual one
  - Flat: long-term rates and short-term rates are the same
  - Inverted: long-term rates below short-term rates

Nature of financial instruments (securities) – Equity

Equity instruments: claims to shares in the net income and assets of a firm, no maturity date.

- Firms not obliged to make periodic payments (dividends are discretionary)
- Firms must pay all debt holders before they make any payment to equity holders (EH, residual claimants) → riskier than debt instruments but confer ownership rights:
  - EHs can benefit from an increase in the income or assets of company (capital gains)
  - EHs have right to vote for directors or certain issues
- **Common stocks**: ownership interests in the firm. Holders receive dividends, take capital gains (or losses) and have the right to vote
- **Preferred stocks**: limited ownership rights, but:
  - Distribute fixed constant dividend
  - Price is relatively stable as the dividend is constant
  - No voting rights
  - Residual claim after creditors in case of default, but priority over common shareholders

Structure of financial markets – different classifications

Primary and secondary markets

- **Primary market**: financial market in which new issues of financial securities are sold to initial buyers → facilitates new financing
- **Secondary market**: securities previously issued can be resold → most of trading takes place here
  - Make securities more liquid
  - Set the price for securities the firm sells in primary market

Exchanges and over-the-counter (OTC) markets

- **Exchanges**: buyers and sellers (through brokers) meet to conduct trades (ex: NYSE)
- **OTC markets**: dealers at different locations have inventory of securities and buy or sell them to anyone willing to accept their price → particularly competitive and most significant market in the US (ex: US government bond market)

Structure of financial markets – different classifications

Money and capital market

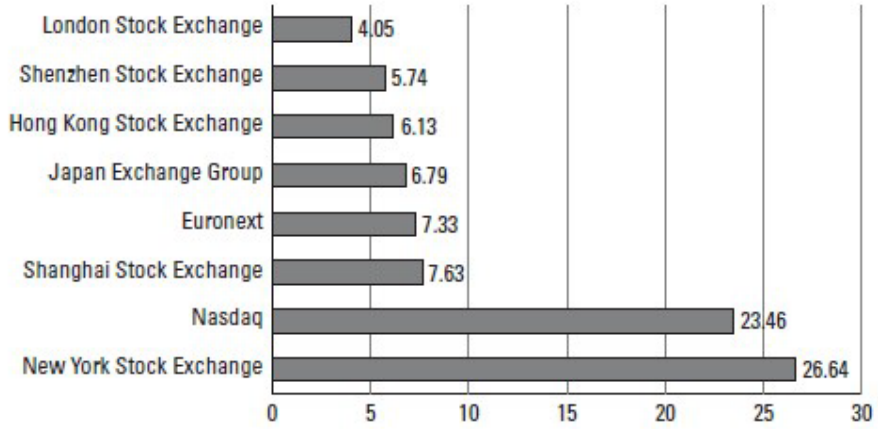
- **Money market**: only short-term debt instrument (<1 year) are traded
- **Capital market**: long-term securities are traded

Quote-driven dealer, order-driven and brokered markets

- **Quote-driven dealer markets**: dealer or market-maker always at one side of the trade, make profit by charging bid-ask spread
- **Order-driven markets**: no intermediation between buyers and sellers
- **Brokered markets**: brokers work for matching buyers and sellers

Structure of financial markets – Secondary markets around the world

Figure 2.6. – *Stock exchanges around the world, by market capitalization ($ trillion, 2021)*



Source: Graph created using data from www.statista.com

Chapter 2 – example of activities proposed

Activity 2.2.

Activity 2.2.

Consult the Federal Reserve website. From the section Large Commercial banks (https://www.federalreserve.gov/releases/lbr/current/), identify the 10 largest US commercial banks and compare their total assets value. Identify also the largest depository institution in the EU and in your own country.

Activity 2.4.

Activity 2.4.

From the 2021 Investment Company Fact Book produced by the Investment Company Institute (available online at https://www.ici.org/system/files/2021-05/2021_factbook. pdf) read the summary on the Significant events in the mutual fund industry.

Chapter 2 – example of activities proposed

Activity 2.5.

Activity 2.5.

In the following table, list the names of some major financial institutions and briefly note down the special features of the financial system in each country.

Country	*Examples of important financial institutions*	*Special features of their system*
US		
UK		
Japan		
France		
Germany		

Activity 2.8.

Activity 2.8.

Consult the Bloomberg web site at https://www.bloomberg.com/markets/rates-bonds/government-bonds/us. Write down the interest rates paid on US Treasury bonds, municipal bonds and corporate bonds. Then try the following questions:

1. Why do 2-year Treasury bonds pay lower rates than 5-year Treasury bonds?
2. Why do 5-year municipal bonds pay lower rates than 5-year Treasury bonds?
3. Why do corporate bonds pay higher rates than government bonds?