Money and Banking

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Lecture 1

I. Why study money, banking and financial markets?
- why study financial markets?
- why study financial institutions and banking?
- why study money and monetary policy?
- why study international finance?

II. An overview of the financial system.
- Function and structure of financial markets
- Financial markets instruments
- International financial markets
- Financial intermediaries
- Regulation of the financial market

Why Study Financial Markets?

- **Financial markets** are markets in which funds are transferred from people and firms who have an **excess** of available funds to people and firms who have a need of funds. (stock markets and bond markets)

- By allocating financial resources more efficiently, financial markets contributes to promote **economic efficiency**. (real estate *vs* shock market)

- A well-functioning financial markets are key for high **economic growth**. (China's treasury bonds trading resumed in **1981**)

- Activities in financial markets have **direct effects** on personal wealth, business and consumer behavior, and the cyclical behavior of the economy. (*subprime mortgage crisis*)

The Bonds Market and Interest Rate

- An asset is a financial claim or a piece of property that is subject to ownership.

- A security (or financial instrument) is a claim on the issuer's future income or assets. It includes bond and stock.

- A bond is a debt security that promised to make payments periodically for a specified period of time.
  An interest rate is the cost of borrowing or the price paid for the rental of funds.

- A stock (or common stock) represents a share of ownership in a corporation. It is a claim on the earnings and the assets of the corporation.

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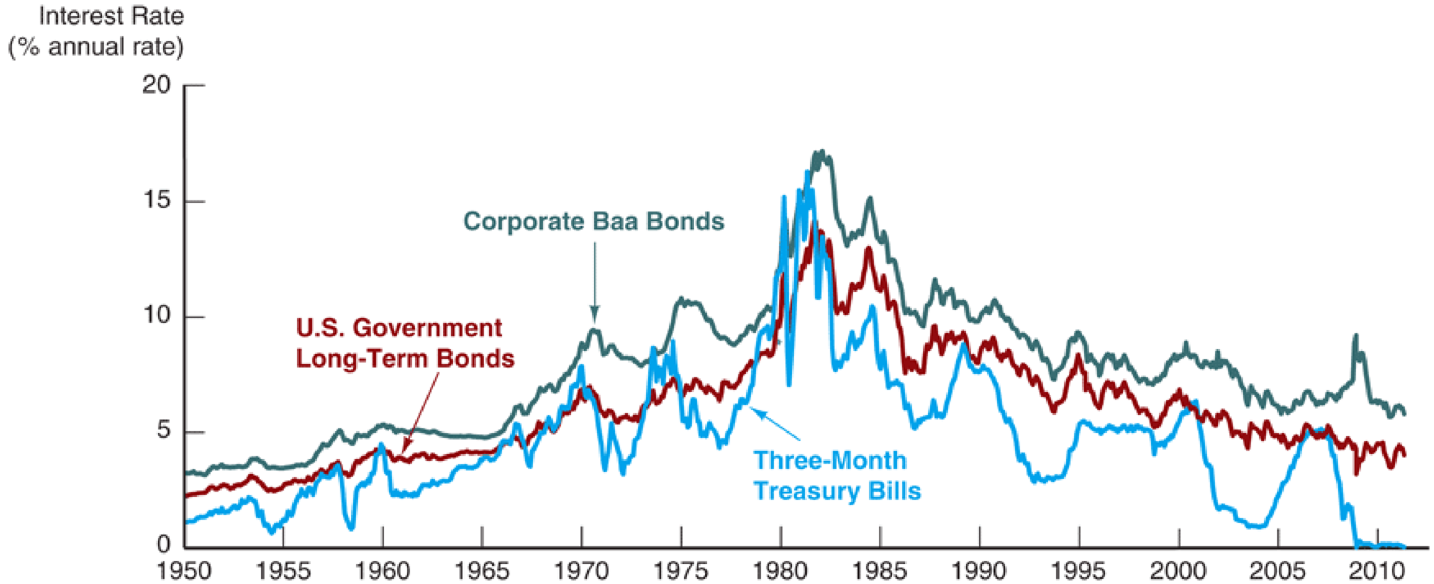
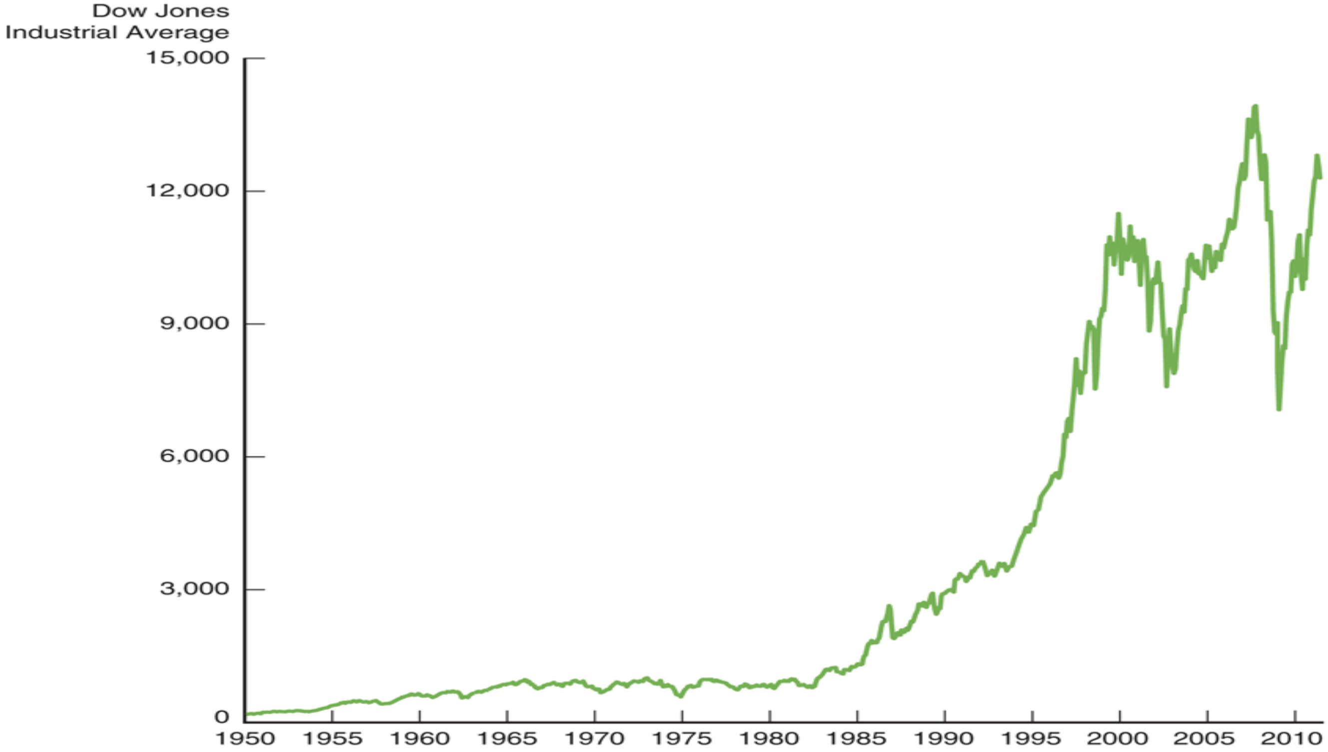
Figure 1 Interest Rates on Selected Bonds, 1950–2011



Sources: Based on Federal Reserve Bulletin
www.federalreserve.gov/releases/H15/data.htm.

Figure 2 Stock Prices as Measured by the Dow Jones Industrial Average, 1950–2011



Source: Dow Jones Indexes https://www.djindexes.com

Why Study Financial Institutions and Banking?

- Financial Intermediaries: institutions that borrow funds from people who have saved and make loans to other people:
  - \- Banks: accept deposits and make loans
  - -Other Financial Institutions: insurance companies, finance companies, pension funds, mutual funds and investment companies
- Financial Innovation: the development of new financial products and services
  - \- Can be an important force for good by making the financial system more efficient
- Financial Crisis: major disruptions in financial markets that are characterized by sharp *declines* in asset prices and the *failures* of many financial and nonfinancial firms.

Why Study Money and Monetary Policy?

- Money plays an important role in generating business cycles

  - Recessions (declining output) and expansions affect all of us

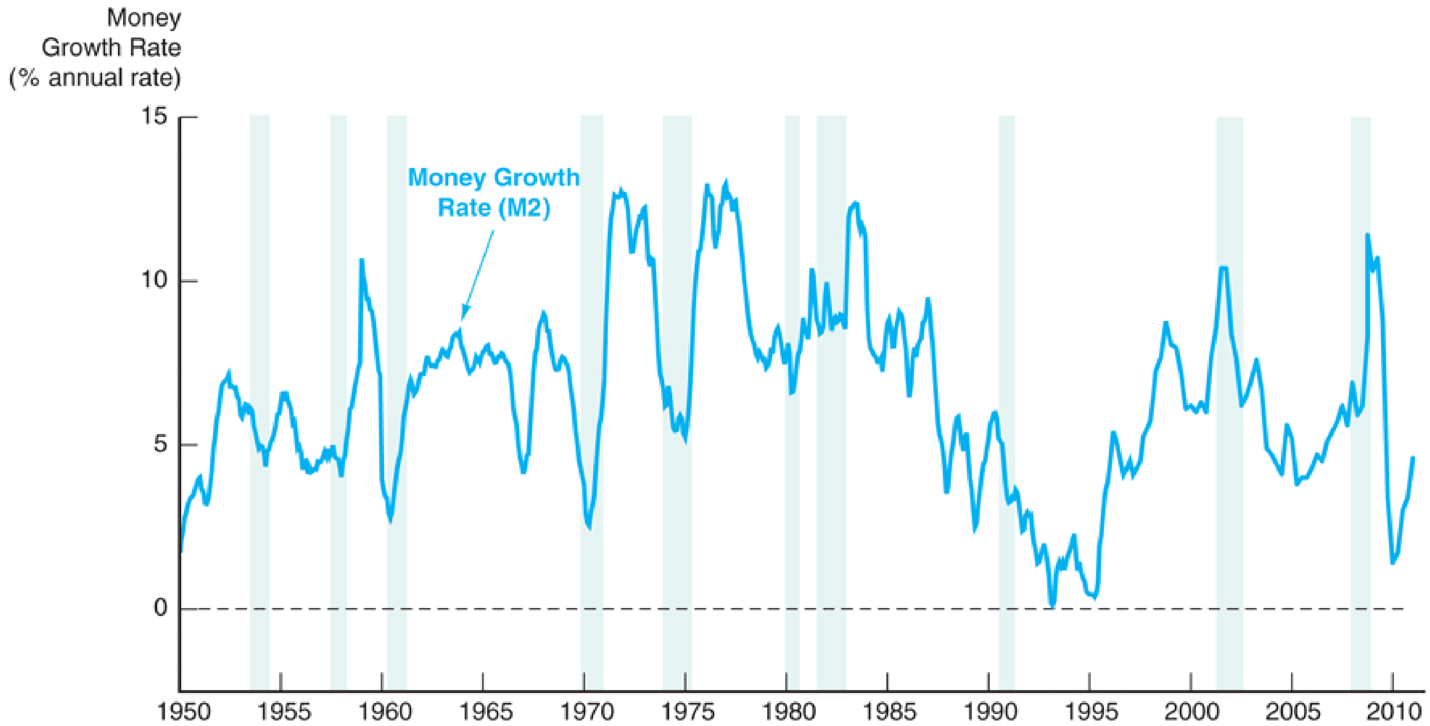
- Data shows a connection between the money supply and the price level

  - The aggregate price level is the average price of goods and services in an economy

  - A continual rise in the price level (inflation) affects all economic players

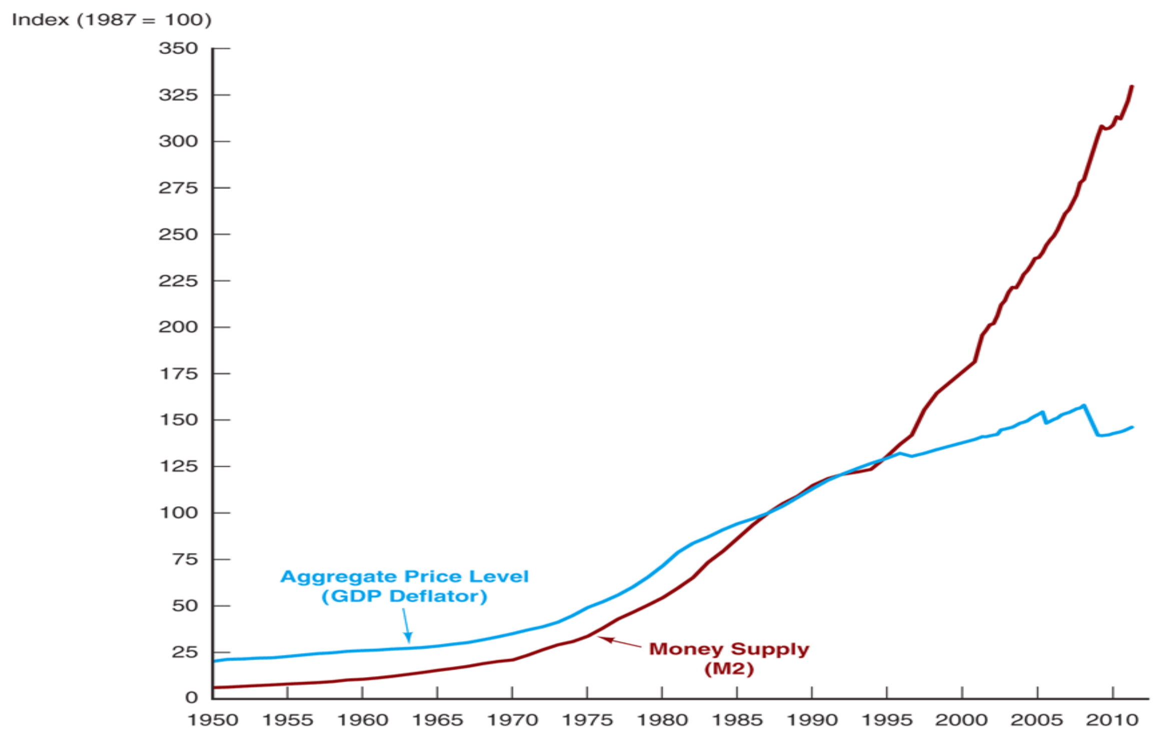
- Money supply is also closely related to interest rates.

Figure 3 Money Growth (M2 Annual Rate) and the Business Cycle in the United States 1950–2011



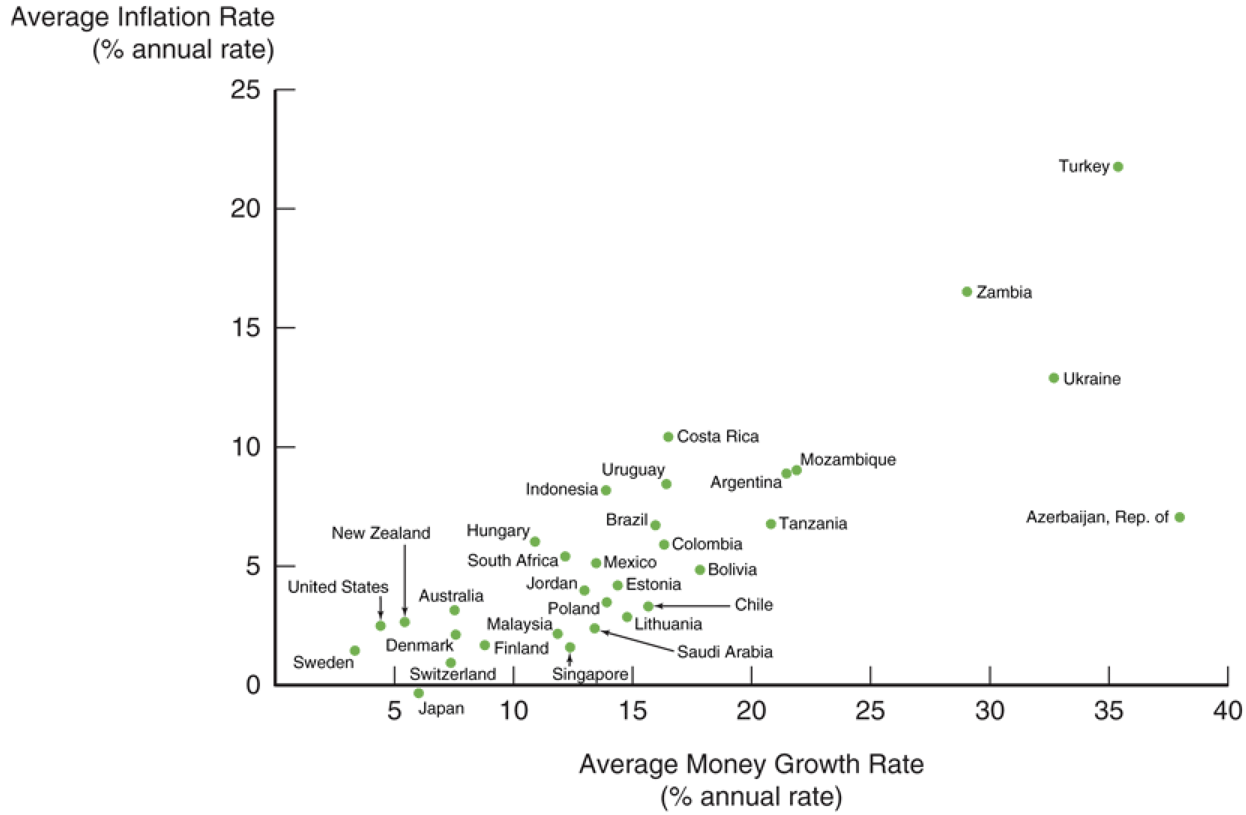
Source: Federal Reserve Bulletin
www.federalreserve. gov/releases/h6/hist/h6hist1.txt.

Figure 4 Aggregate Price Level and the Money Supply in the United States, 1950–2011



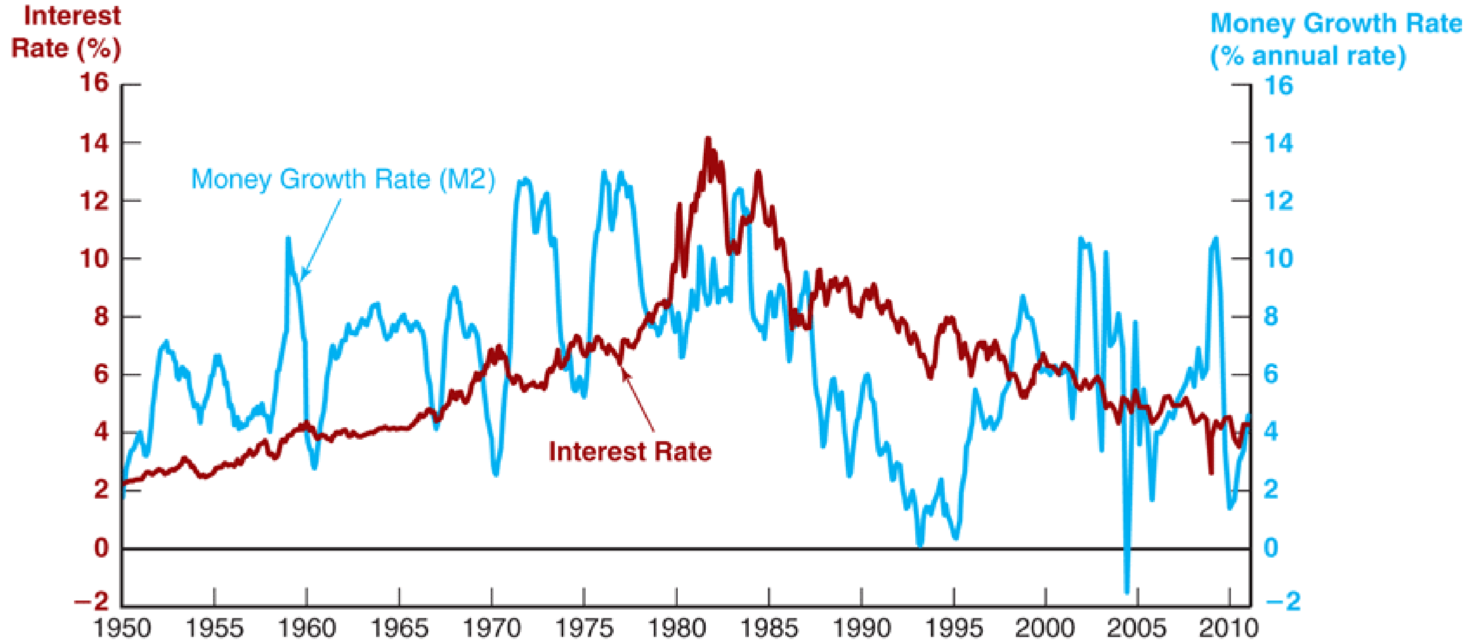
Sources: www.stls.frb.org/fred/data/gdp/gdpdef;
www.federalreserve.gov/releases/h6/hist/h6hist10.txt.

Figure 5 Average Inflation Rate Versus Average Rate of Money Growth for Selected Countries, 2000-2010



Source: International Financial Statistics. www.imfstatistics.org/imf.

Figure 6 Money Growth (M2 Annual Rate) and Interest Rates (Long-Term U.S. Treasury Bonds), 1950–2011



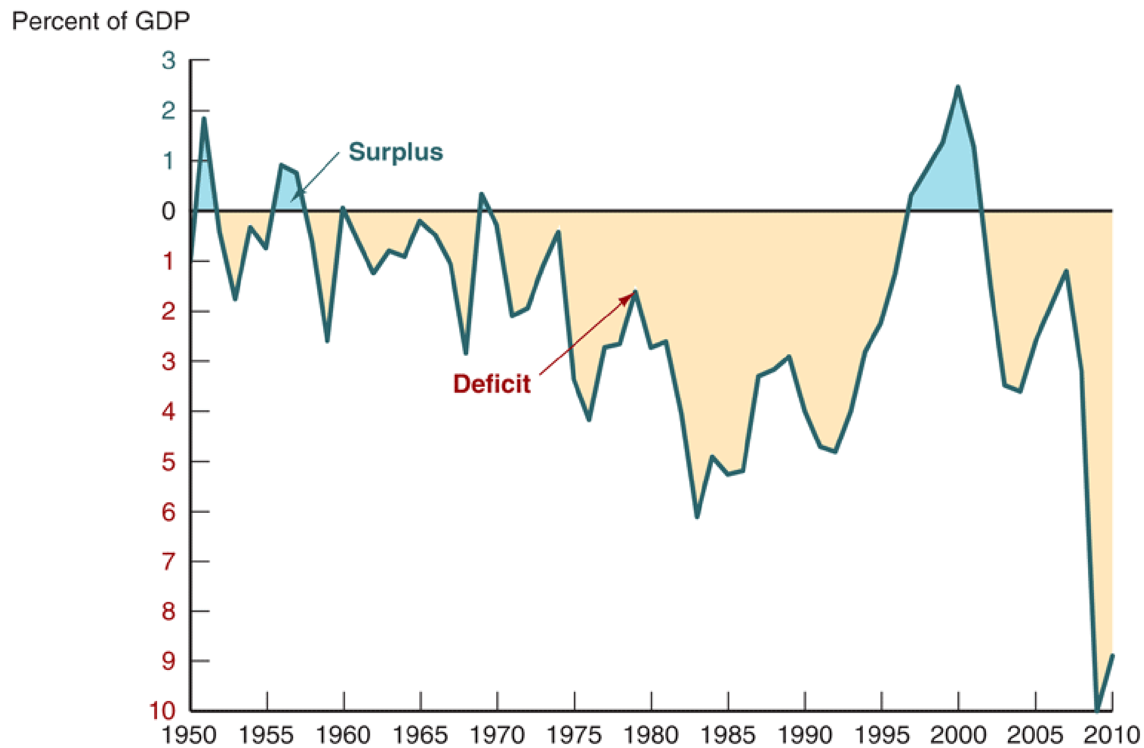
Sources: Federal Reserve Bulletin
www.federalreserve.gov/releases/h6/hist/h6hist1.txt.

Monetary Policy and Fiscal Policy

- **Monetary policy** is the management of the money supply and interest rates
  - Conducted by the central bank (the *Federal Reserve* in US, the *People's Bank of China* in China)

- **Fiscal policy** deals with government spending and taxation
  - *Budget deficit* is the excess of expenditures over revenues for a particular year
  - *Budget surplus* is the excess of revenues over expenditures for a particular year
  - Any deficit must be financed by *borrowing* (treasury bonds, national loans)

Figure 7 Government Budget Surplus or Deficit as a Percentage of Gross Domestic Product, 1950–2010



Source: www.gpoaccess.gov/usbudget/fy06/sheets/hist01z2.xls.

Why Study International Finance

- The **foreign exchange market** is where funds are converted from one currency to another.
  - The **foreign exchange rate** is the price of one currency in terms of another;
  - It is mostly determined by the foreign exchange market (Renminbi excluded)

- The **international financial system** has tremendous impact on domestic economies:
  - How a country's choice of exchange rate policy affect its monetary policy?
  - How *capital controls* impact domestic financial systems and therefore the performance of the economy?
  - Which should be the role *of international financial institutions* like the IMF?

Function of the financial markets

- Perform the essential function of channeling funds from economic players that have saved surplus funds to those that have a shortage of funds

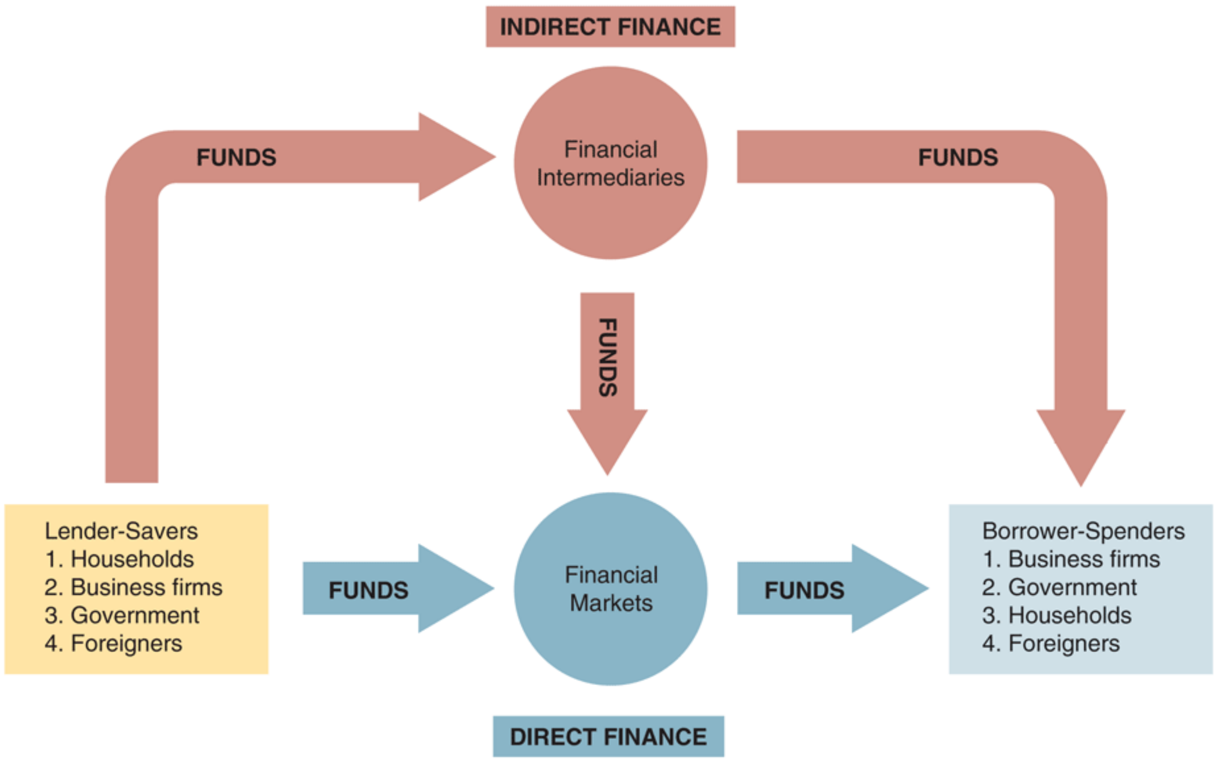
  - Promotes economic efficiency by producing an efficient allocation of capital, which increases production (e.g. Google, high-speed-railway in China)

  - Directly improve the well-being of consumers by allowing them to time purchases better (e.g. Housing mortgage, care mortgage, student loan)

- **Direct finance**: borrowers borrow funding directly from lenders in financial markets

  - indirect finance: borrowers borrow through **financial intermediaries**

Figure 8 Flows of Funds Through the Financial System



Structure of Financial Markets

- Debt and Equity Markets
  - Debt instruments : *bond* or *mortgage*

    - **maturity** is the number of years(terms) until the instrument's expiration date

  - Equities: *common stocks*

    - **dividends** are periodic payments made by (long term) equities to their holders

- Primary and Secondary Markets
  - Primary markets: where *new issues* of securities are sold

    - **investment banks** underwrite securities here

  - Secondary markets: where *previously issued* securities being resold

    - **Brokers** and **dealers** work here

Structure of Financial Markets

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

  - **Exchanges**: trade in a central location (*NYSE, Chicago Board of Trade for commodities*)

  -**OTC Markets**: dealers hold securities for sale at a preset price (*Foreign exchange*, *Federal funds*)

- Money and Capital Markets
  - **Money markets** deal in short-term debt instruments
  - **Capital markets** deal in longer-term debt and equity instruments

Money Market Instruments

- **US treasury bills**: bonds issued by the US government,

  - most *liquid* and almost *risk-free*

- **Certificate of deposit**: bonds sold by a bank to depositors

  - pays interest annually and the original purchase price at maturity

- **Commercial Paper**: short term bonds issued by large banks or corporations

- **Repurchase Agreement (repos)**: short term (usually < 2 weeks) loans use treasury bills as *collateral*.

- **Federal funds**: inter-bank overnight loans of their deposits in the *Federal Reserve*. (*SHIBOR* in China and *LIBOR* in UK)

  - *federal funds rates* measure the stance of monetary policy

Table 1 Principal Money Market Instruments

Principal Money Market Instruments

Type of Instrument	1980	1990	2000	2010
	Amount Outstanding ($ billions, end of year)			
U.S. Treasury bills	216	527	647	1,773
Negotiable bank certificates of deposit (large denominations)	317	543	1,053	1,833
Commercial paper	122	557	1,619	1,057
Federal funds and security repurchase agreements	64	388	768	1,234

Source: Federal Reserve Flow of Funds Accounts; www.federalreserve.gov.

Capital Market Instruments

- **Stocks**: equity claims on the net income and assets of a corporation
- **Mortgages**: loans used to purchase real structures(housing, landing)
- **Corporate bonds**: issued by corporations with strong credit rating (*convertible corporate bonds*)
- **US government securities** issued to finance the federal deficit
- **US government agency securities**: issued by government agencies(e.g. *Fannie Mae*) to finance mortgages, farm loans, or power generating equipment.
- **State and local government bonds (*municipal bonds*)**: issued by municipal government to finance expenditures on schools, roads and so on.
- **Consumer and bank commercial loans**: loans made by banks or financial companies

Table 2 Principal Capital Market Instruments

Principal Capital Market Instruments

Type of Instrument	Amount Outstanding ($ billions, end of year) 1980	1990	2000	2010
Corporate stocks (market value)	1,601	4,146	17,627	17,189
Residential mortgages	1,106	2,886	5,463	9,436
Corporate bonds	366	1,008	2,230	2,983
U.S. government securities (marketable long-term)	407	1,653	2,184	2,803
U.S. government agency securities	193	435	1,616	6,158
State and local government bonds	310	870	1,192	1,807
Bank commercial loans	459	818	1,091	1,031
Consumer loans	355	813	536	710
Commercial and farm mortgages	352	829	1,214	1,919

Source: Federal Reserve Flow of Funds Accounts; www.federalreserve.gov.

Internationalization of Financial Markets

- **Foreign Bonds**: sold in a foreign country and denominated in that country's currency
- **Eurobond**: bond denominated in a currency other than that of the country in which it is sold (NOT necessarily denoted in Euro)
- **Eurocurrencies**: foreign currencies deposited in banks outside the home country
  - *Eurodollars*: U.S. dollars deposited in foreign banks outside the U.S. or in foreign branches of U.S. banks
- **World Stock Markets**
  - stock markets indices: *Dow Jones*, *S&P 500*, *FTSE 100*, *Nikkei 300*, *Hang Seng*, *Strait Times*.

Function of Financial Intermediaries: Indirect Finance

- Lower *transaction costs* (time and money spent in carrying out financial transactions)
  - **Economies of scale** (transaction cost reduces as transaction size increases)
  - **Liquidity services** (e.g. *checking accounts*)

- Reduce the exposure of investors to risk
  - **Risk sharing** (*asset transformation*): sell low risk assets to customers and purchase high risk (high return) assets
  - **Diversification**: investing in a collection (*portfolio*) of assets that hedging each other's risk

Asymmetric Information

- **Adverse selection**: (before transaction)
  - potential borrowers that most likely produce *bad credit* are most actively seeking loans and thus most likely to get the loans
  - financial intermediaries are better equipped to *screen* out bad credit risks

- **Moral hazard**: (after transaction)
  - the borrowers engage in activities that make the loan less likely to be paid back
  - financial intermediaries develop expertise in *monitoring* the parties they lend to and thus reduce the risk of moral hazard

Table 3 Primary Assets and Liabilities of Financial Intermediaries

Primary Assets and Liabilities of Financial Intermediaries

Type of Intermediary	Primary Liabilities (Sources of Funds)	Primary Assets (Uses of Funds)
Depository institutions (banks)		
Commercial banks	Deposits	Business and consumer loans, mortgages, U.S. government securities, and municipal bonds
Savings and loan associations	Deposits	Mortgages
Mutual savings banks	Deposits	Mortgages
Credit unions	Deposits	Consumer loans
Contractual savings institutions		
Life insurance companies	Premiums from policies	Corporate bonds and mortgages
Fire and casualty insurance companies	Premiums from policies	Municipal bonds, corporate bonds and stock, and U.S. government securities
Pension funds, government retirement funds	Employer and employee contributions	Corporate bonds and stock
Investment intermediaries		
Finance companies	Commercial paper, stocks, bonds	Consumer and business loans
Mutual funds	Shares	Stocks, bonds
Money market mutual funds	Shares	Money market instruments

Table 4 Principal Financial Intermediaries and Value of Their Assets

Primary Financial Intermediaries and Value of Their Assets

Type of Intermediary	Value of Assets ($ billions, end of year) 1980	1990	2000	2010
Depository institutions (banks)				
Commercial banks	1,481	3,334	6,469	14,336
Savings and loan associations and mutual savings banks	792	1,365	1,218	1,244
Credit unions	67	215	441	912
Contractual savings institutions				
Life insurance companies	464	1,367	3,136	5,176
Fire and casualty insurance companies	182	533	862	1,242
Pension funds (private)	504	1,629	4,355	4,527
State and local government retirement funds	197	737	2,293	2,661
Investment intermediaries				
Finance companies	205	610	1,140	1,439
Mutual funds	70	654	4,435	7,935
Money market mutual funds	76	498	1,812	2,755

Source: Federal Reserve Flow of Funds Accounts; www.federalreserve.gov/releases/Z1/.

Regulation of the Financial System

- **Increasing information available to investors**
  - Reduce adverse selection and moral hazard problems
  - Reduce *insider trading* (SEC).

- **Ensuring the soundness of financial intermediaries**
  - Restriction on entry (Office of the Comptroller of the Currency)
  - Disclosure
  - Restrictions on Assets and Activities (control holding of risky assets).
  - Deposit Insurance (avoid bank runs).
  - Limits on Competition (mostly in the past):
    - branching, restrictions on interest rate

- **Financial Regulation Abroad**
  - The major differences between financial regulation in the US and abroad relate to bank regulation (branching, holding of commercial firms)

Table 5 Principal Regulatory Agencies of the U.S. Financial System

Principal Regulatory Agencies of the U.S. Financial System

Regulatory Agency	Subject of Regulation	Nature of Regulations
Securities and Exchange Commission (SEC)	Organized exchanges and financial markets	Requires disclosure of information, restricts insider trading
Commodities Futures Trading Commission (CFTC)	Futures market exchanges	Regulates procedures for trading in futures markets
Office of the Comptroller of the Currency	Federally chartered commercial banks	Charters and examines the books of federally chartered commercial banks and imposes restrictions on assets they can hold
National Credit Union Administration (NCUA)	Federally chartered credit unions	Charters and examines the books of federally chartered credit unions and imposes restrictions on assets they can hold
State banking and insurance commissions	State-chartered depository institutions	Charter and examine the books of state-chartered banks and insurance companies, impose restrictions on assets they can hold, and impose restrictions on branching
Federal Deposit Insurance Corporation (FDIC)	Commercial banks, mutual savings banks, savings and loan associations	Provides insurance of up to $250,000 for each depositor at a bank, examines the books of insured banks, and imposes restrictions on assets they can hold
Federal Reserve System	All depository institutions	Examines the books of commercial banks that are members of the system, sets reserve requirements for all banks
Office of Thrift Supervision	Savings and loan associations	Examines the books of savings and loan associations, imposes restrictions on assets they can hold