中南财经政法大学
ZHONGNAN UNIVERSITY OF ECONOMIC AND LAW

Financial Markets

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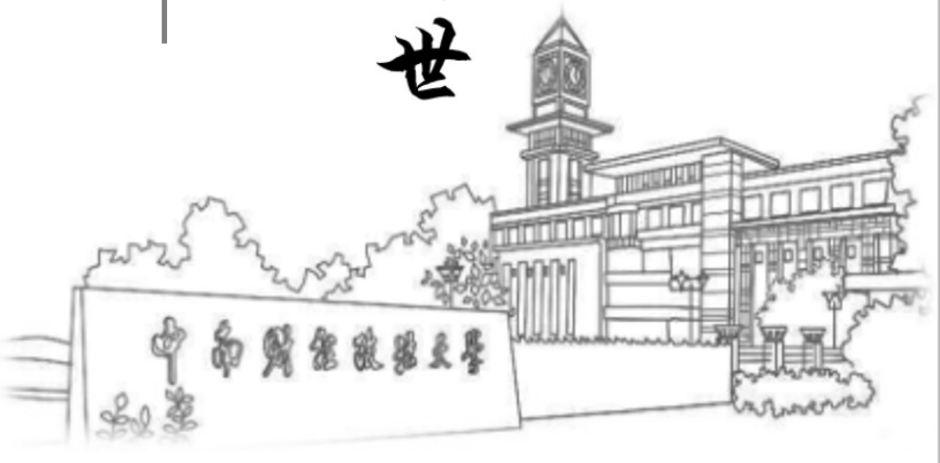
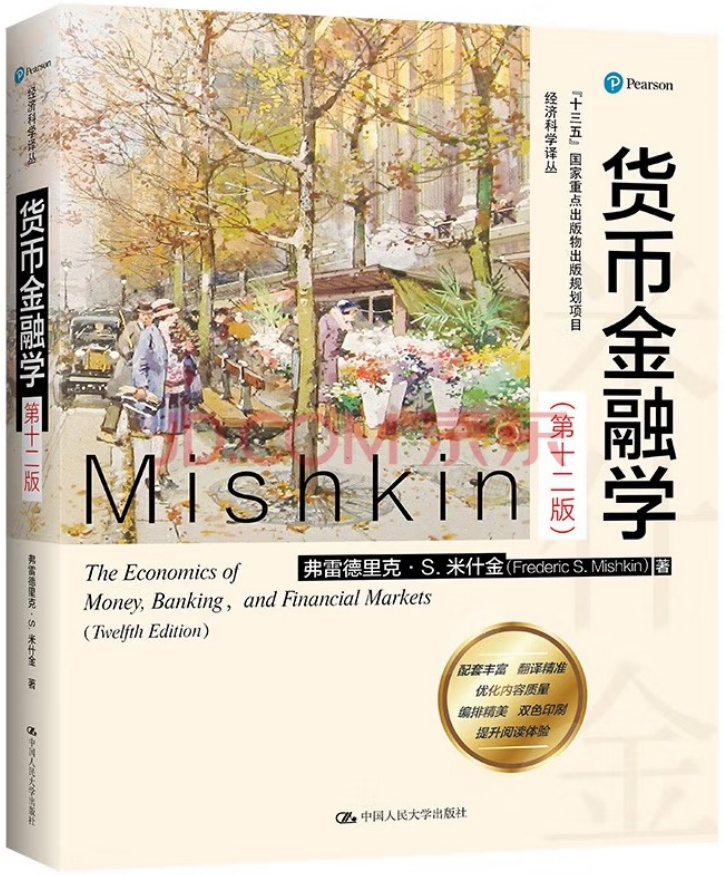
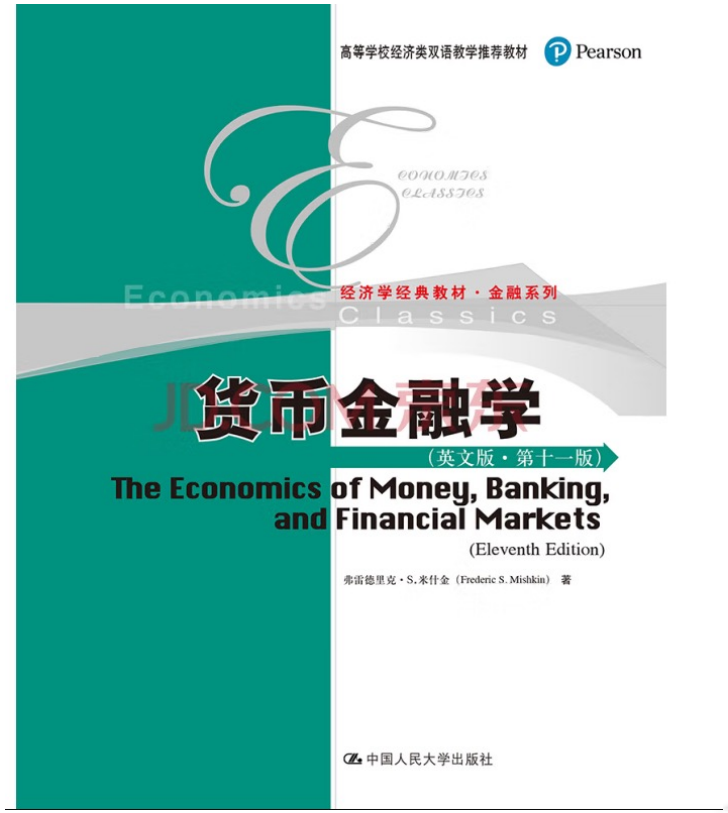
博文明理 厚德濟世



Recommended Textbooks

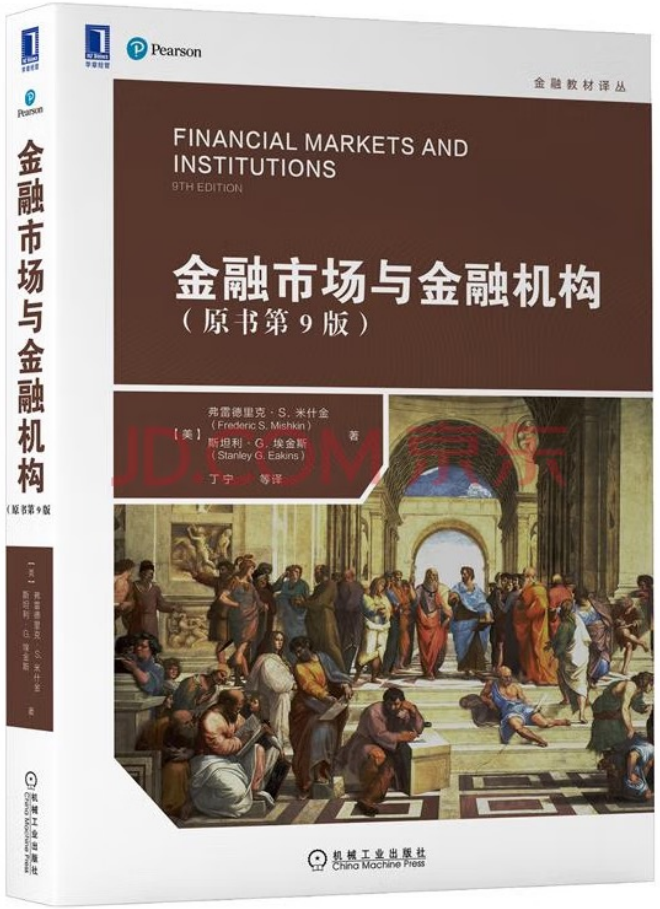
1. The Economics of Money, Banking, and Financial Markets by Frederic S. Mishkin





Recommended Textbooks

2. Financial Markets and Institutions by Frederic S. Mishkin & Stanley G. Eakins



Grading Policy

1. Homework (30%)

You will have 4-6 HW assignments throughout this semester.

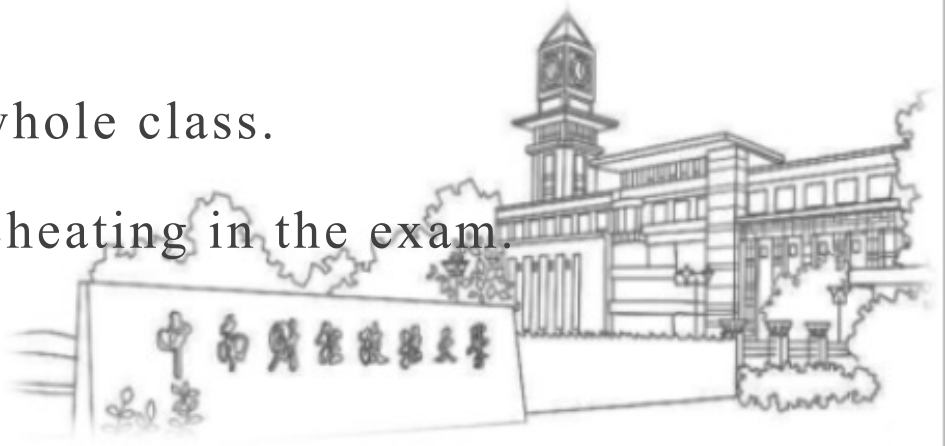
HW can be done in groups but each of you need to turn in your own HW.

HW deadlines are **HARD** deadlines. If you do not have a good reason (e.g. medical emergency), I will deduct 10-50 points based on how late your HW is turned in.

2. Final Exam (70%)

I may curve your score based on the performance of the whole class.

Relax, I will not lower your score unless you are caught cheating in the exam.



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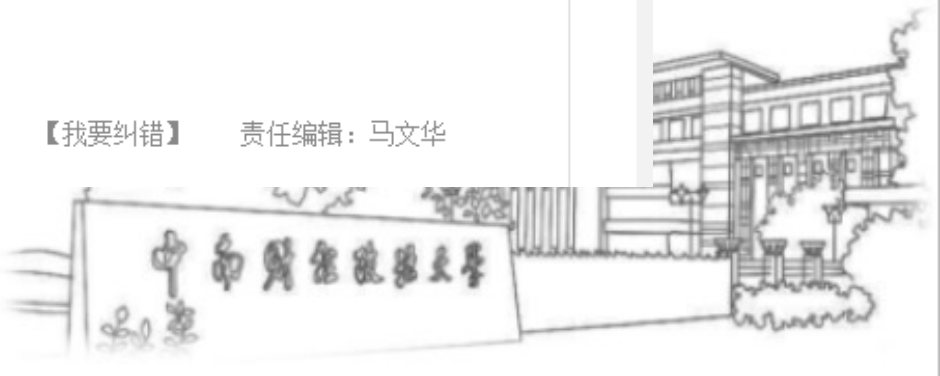
2022年8月22日全国银行间同业拆借中心受权公布贷款市场报价利率（LPR）公告

2022-08-22 12:08 来源： 人民银行网站

中国人民银行授权全国银行间同业拆借中心公布，2022年8月22日贷款市场报价利率（LPR）为：1年期LPR为3.65%，5年期以上LPR为4.3%。以上LPR在下一次发布LPR之前有效。

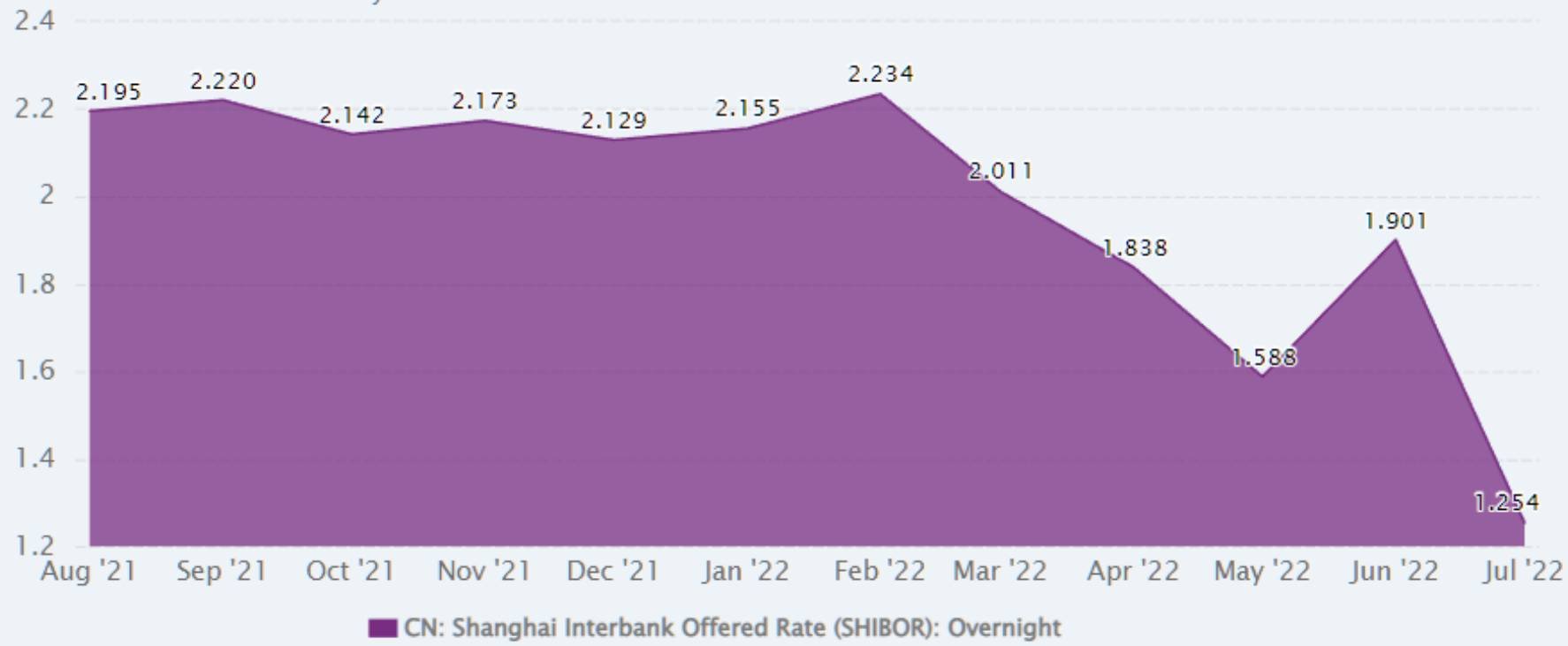
【我要纠错】 责任编辑：马文华



View China's Shanghai Interbank Offered Rate (SHIBOR): Overnight from Oct 2006 to Jul 2022 in the chart:

max | 1y | 5y | 10y | line | August 1, 2018 | July 1, 2022 | Apply

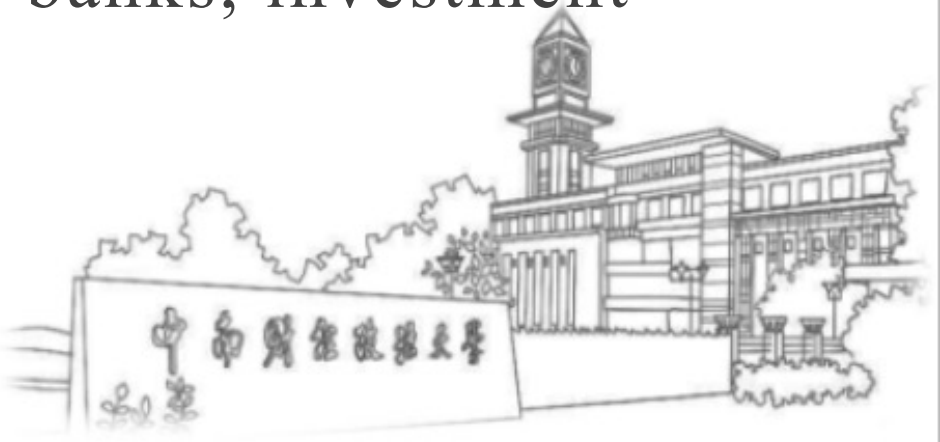
There is no data available for your selected dates.



SOURCE: WWW.CEICDATA.COM | National Interbank Funding Center

What will we learn?

- Understand why financial markets and institutions exist
- Study the role of money in the economy
- Examine how financial markets such as bond, stock and foreign exchange markets work
- Examine how financial institutions such as banks, investment and insurance companies work



Roadmap

- **Introduction**

Motivation, concepts, background knowledge, etc.

- **Fundamentals of Financial Markets**

Interest rates, risk, rational expectations, efficient market hypothesis

- **Fundamentals of Financial Institutions**

Lemons Problem, Moral Hazard, Financial Regulations, Financial Crises

- **Central Banking and Monetary Policy**

Central Banks, Conduct of Monetary Policy

- **Different Types of Financial Markets (FMI textbook)**

Money Market, Bond Market, Stock Market, Mortgage Market, Foreign Exchange Market

  - **Financial Institutions Industry (FMI textbook)**
  - **Monetary Theory (EMBFM textbook)**

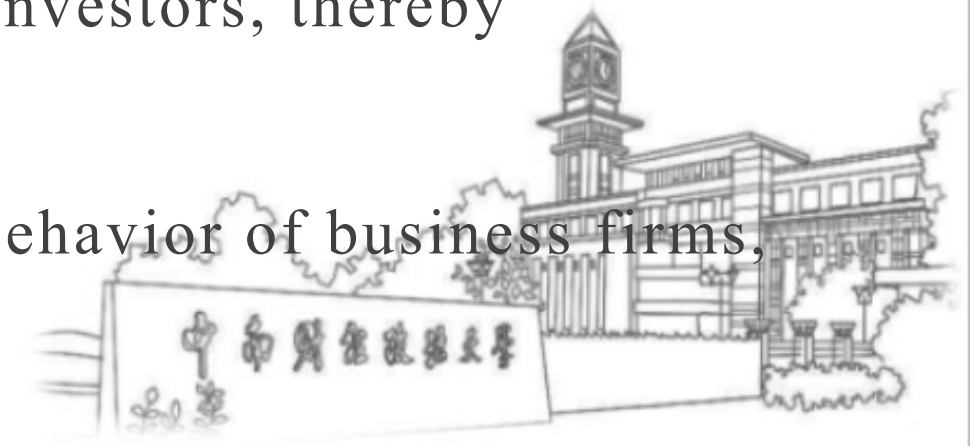
Chapter 1: Why Study Financial Markets and Institutions?

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

Financial markets, such as bond and stock markets, are crucial in our economy.

1. These markets channel funds from savers to investors, thereby promoting economic efficiency.
2. Market activity affects personal wealth, the behavior of business firms, and economy as a whole.

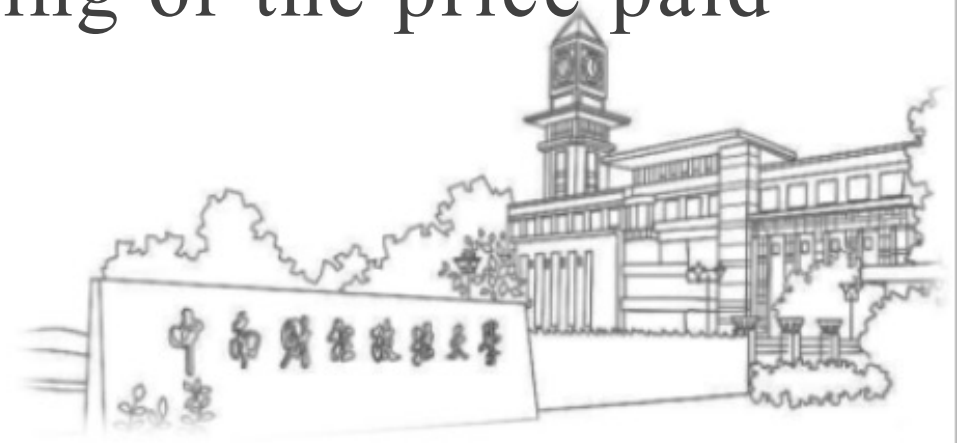


The Bond Market and Interest Rates

A **security** (financial instrument) is a claim on the issuer's future income or assets.

A **bond** is a debt security that promises 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.

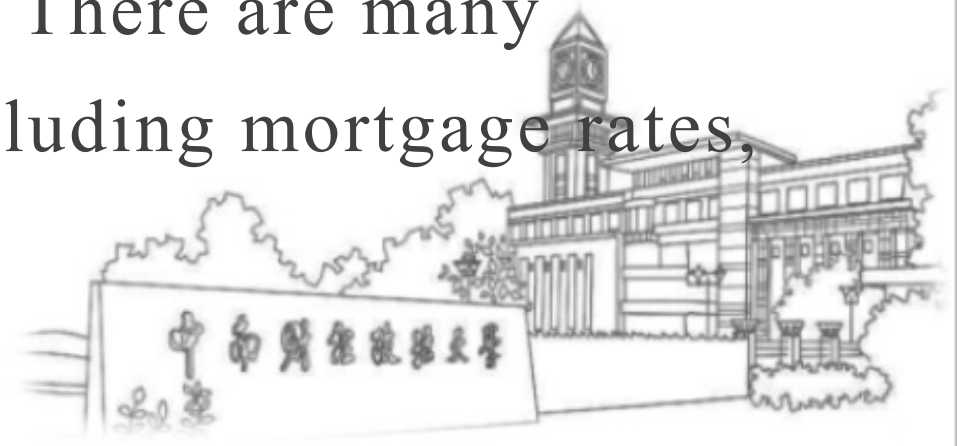


The Bond Market and Interest Rates

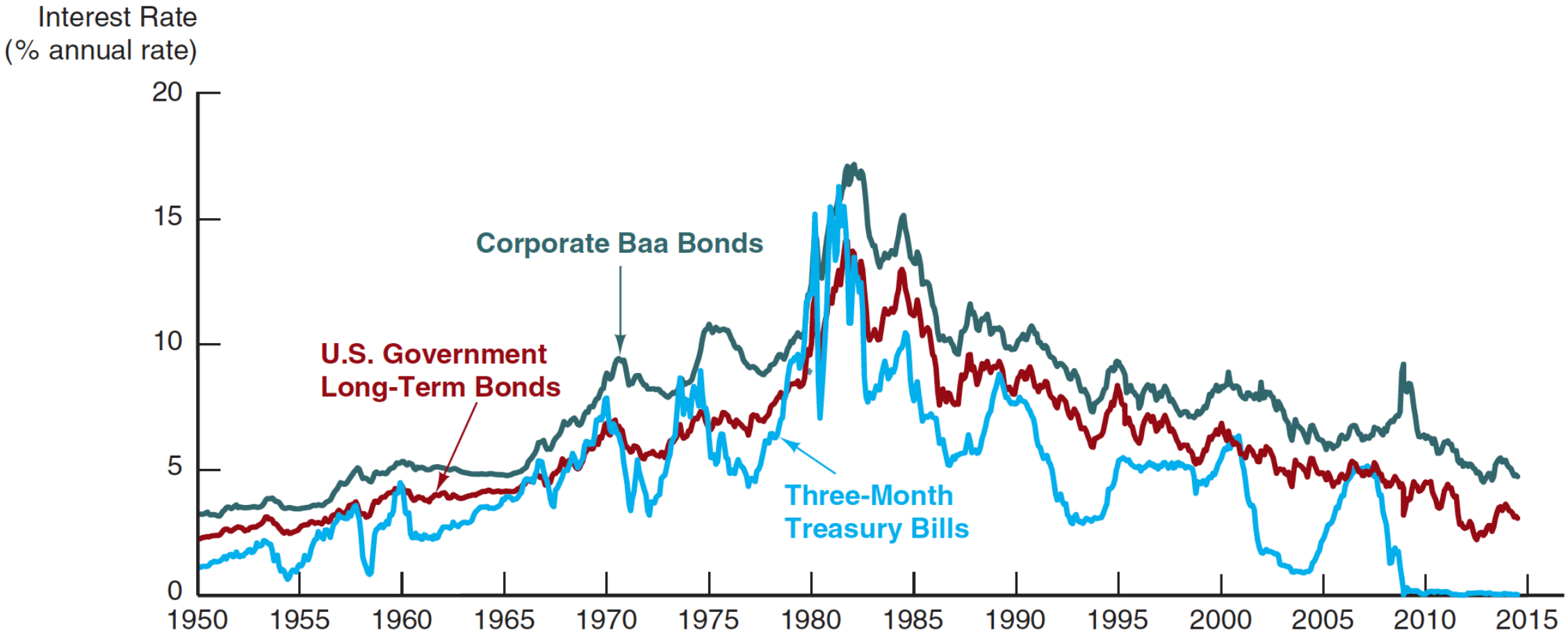
Bond markets allow **governments**, **corporations** to borrow to finance activities.

In this market, borrowers issue a **security**, called a **bond**, that promises the timely payment of interest and principal over some specific time horizon.

The **interest rate** is the cost of borrowing. There are many different types of market interest rates, including mortgage rates, car loan rates, etc.



Interest Rates on Selected Bonds, 1950–2014



Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

The Stock Market

Stock market is the market where common stock (or just stock), representing ownership in a company, are traded.

Common stock represents a share of ownership in a corporation.

A **share of stock** is a **security** that claims on the residual earnings and assets of the corporation

The Stock Market

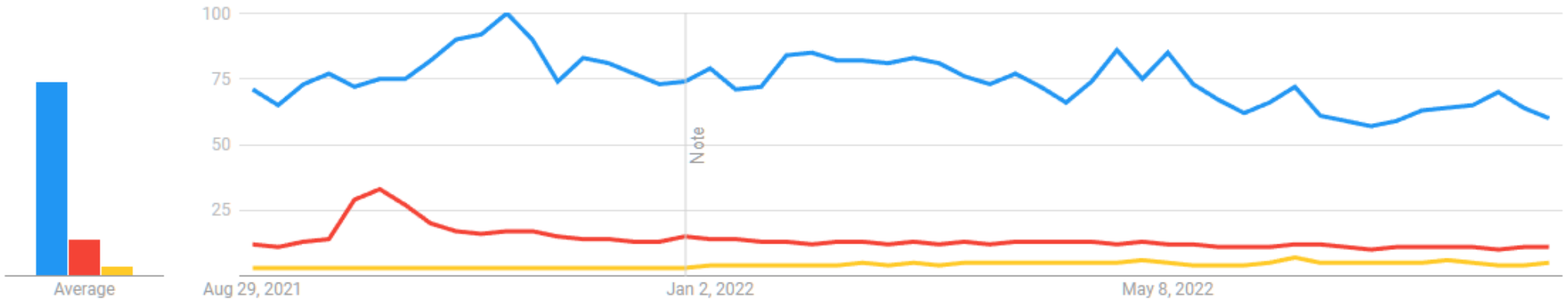
Companies initially sell stock (in the **primary market**) to raise money. But after that, the stock is traded among investors (**secondary market**).

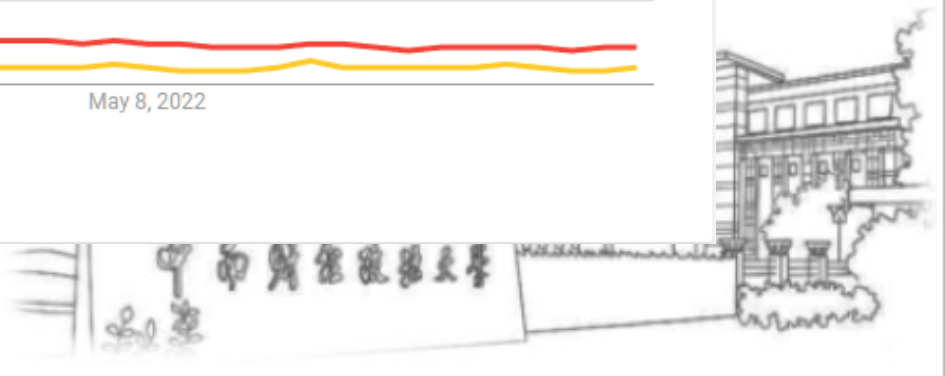
Of all the active markets, the stock market receives the most attention from the media. Why?

stock	bond	interest rate	+ Add comparison
Search term	Search term	Search term	

Worldwide ▾ Past 12 months ▾ All categories ▾ Web Search ▾

Interest over time





Dow Jones Industrial Average, 1994–2022

Source: Yahoo Finance

Foreign Exchange Market

The foreign exchange market is where international currencies trade and exchange rates are set.

Although most people know little about this market, it has a daily volume around $6.6 trillion in 2019! (Source: Bank for International Settlements)

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Foreign Exchange Market

From

USD – US Dollar

To

CNY – Chinese Yuan Renminbi

We use midmarket rates

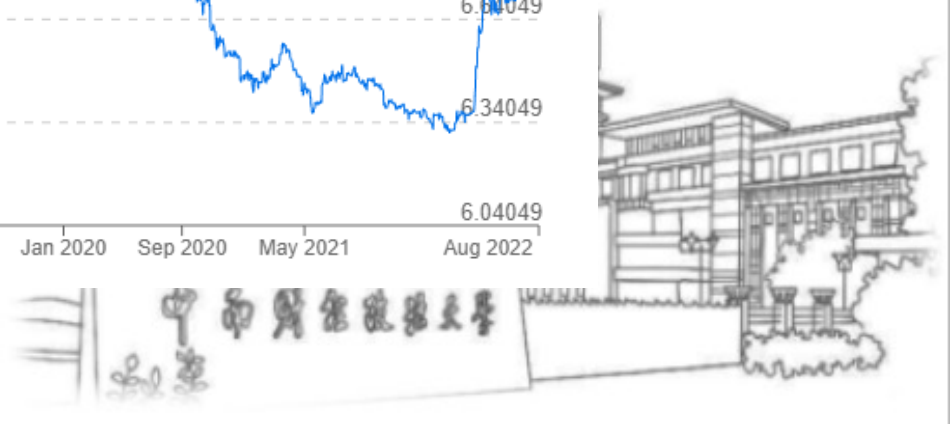
View transfer quote

USD to CNY Chart

US Dollar to Chinese Yuan Renminbi

• 1 USD = 6.8718 CNY Aug 27, 2022, 08:47 UTC

Source: https://www.xe.com



Why Study Financial Institutions?

Financial institutions are what make financial markets work. Without them, financial markets would not be able to move funds from people who save to people who have productive investment opportunities. Thus, financial institutions play a crucial role in the economy.

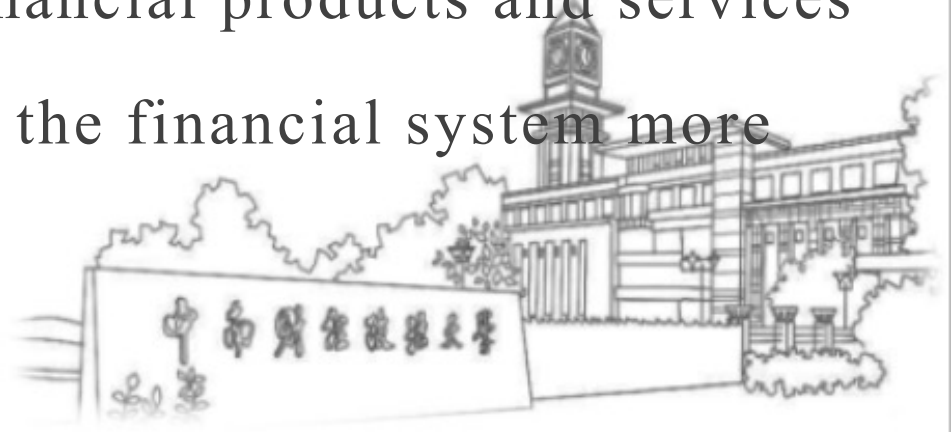
Types of financial institutions: banks, insurance companies, mutual funds, finance companies, and investment bank. **All financial institutions are heavily regulated by the government**.

Q: why do we need these financial institutions?

Why Study Financial Institutions?

- **Financial intermediaries**: institutions that borrow funds from people who have saved and in turn 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

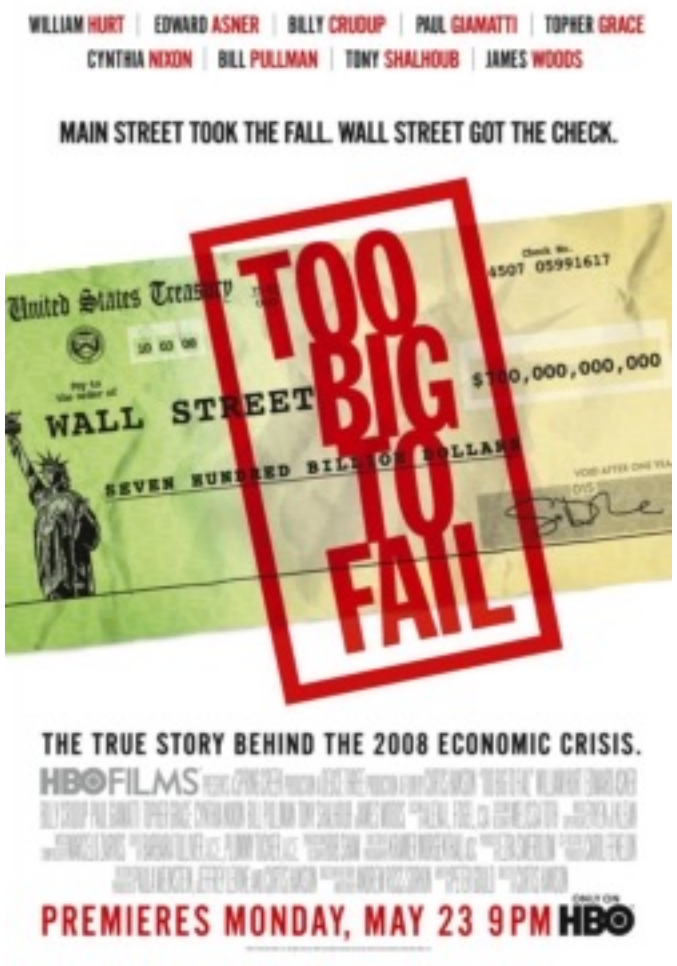
- **Financial innovation**: the development of new financial products and services
  - ➢Can be an important force for good by making the financial system more efficient

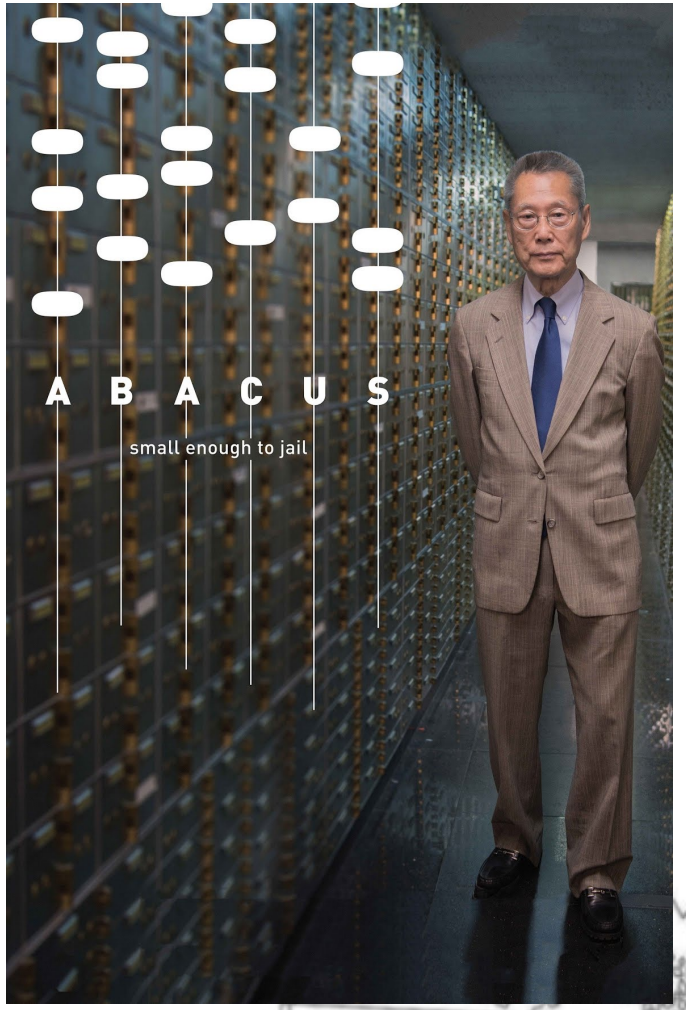


Why Study Financial Institutions?

- **Managing risk in financial institutions**
  - ➢Focusing on risk management in the financial institution.
- **Financial crises**
  - ➢The financial crises of 2007–2009 was the worst financial crisis since the Great Depression. Why did it happen?

2008 Financial Crisis





Why Study Money and Monetary Policy?

Evidence suggests that money plays an important role in generating business cycles.

Recessions (unemployment) and expansions affect all of us.

Monetary theory ties changes in the money supply to changes in aggregate economic activity and the price level.

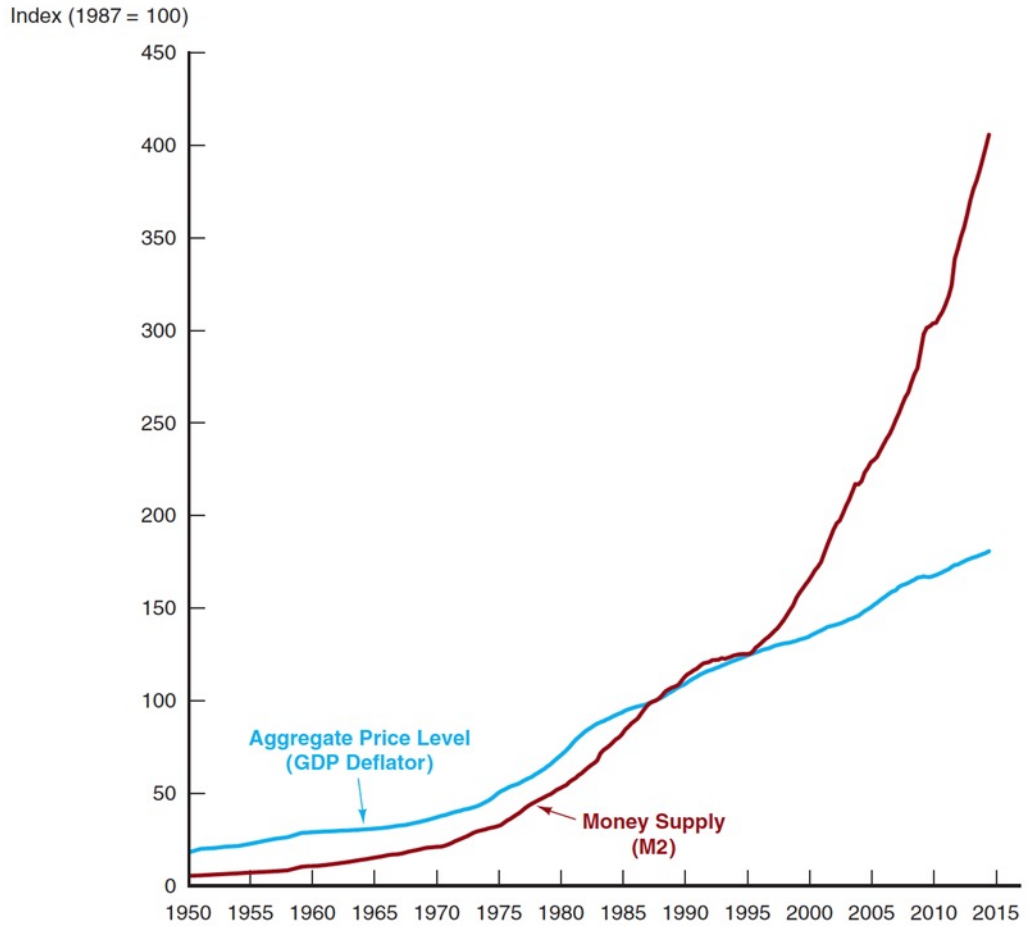
Money, Business Cycles, and Inflation

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.

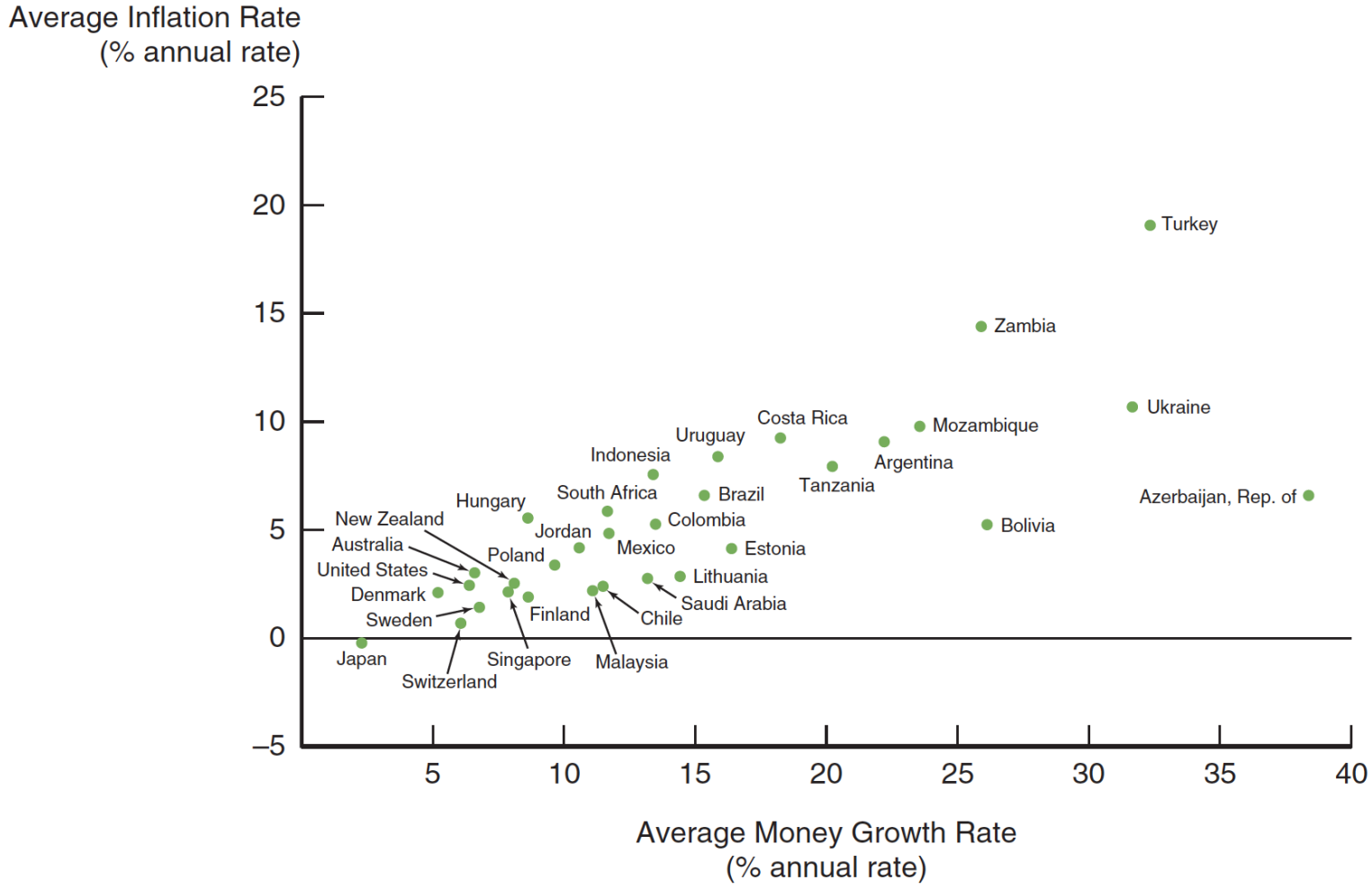
Data shows a connection between the money supply and the price level.

Aggregate Price Level and the Money Supply in the United States, 1950–2014

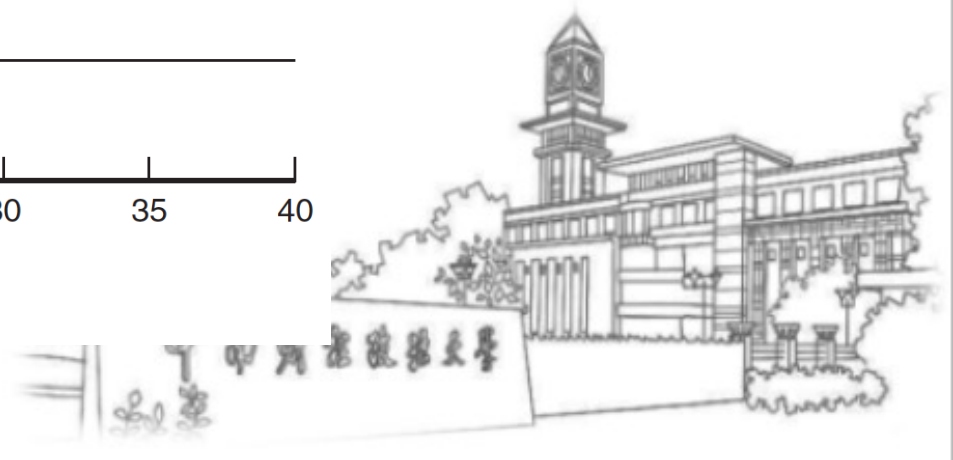


Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

Average Inflation Rate Versus Average Rate of Money Growth, Selected Countries, 2003-2013



Source: International Financial Statistics. http://www.imf.org/external/data.htm



Money and Interest Rates

Q: why do we care about the price level when we study financial markets?

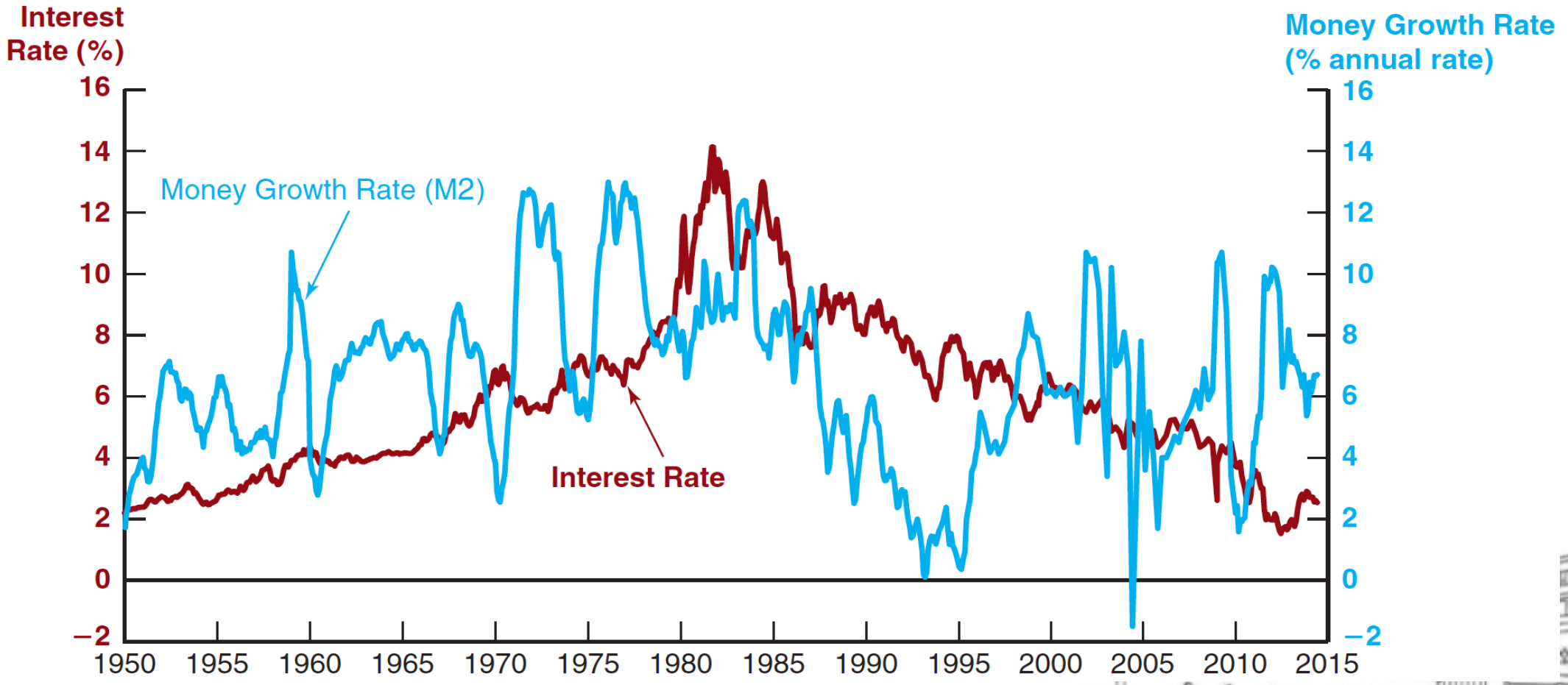
Money and Interest Rates

Interest rates are the price of money

Prior to 1980, the rate of money growth and the interest rate on long-term Treasury bonds were closely tied

Since then, the relationship is less clear but the rate of money growth is still an important determinant of interest rates

Money Growth (M2 Annual Rate) and Interest Rates (Long-Term U.S. Treasury Bonds), 1950–2014



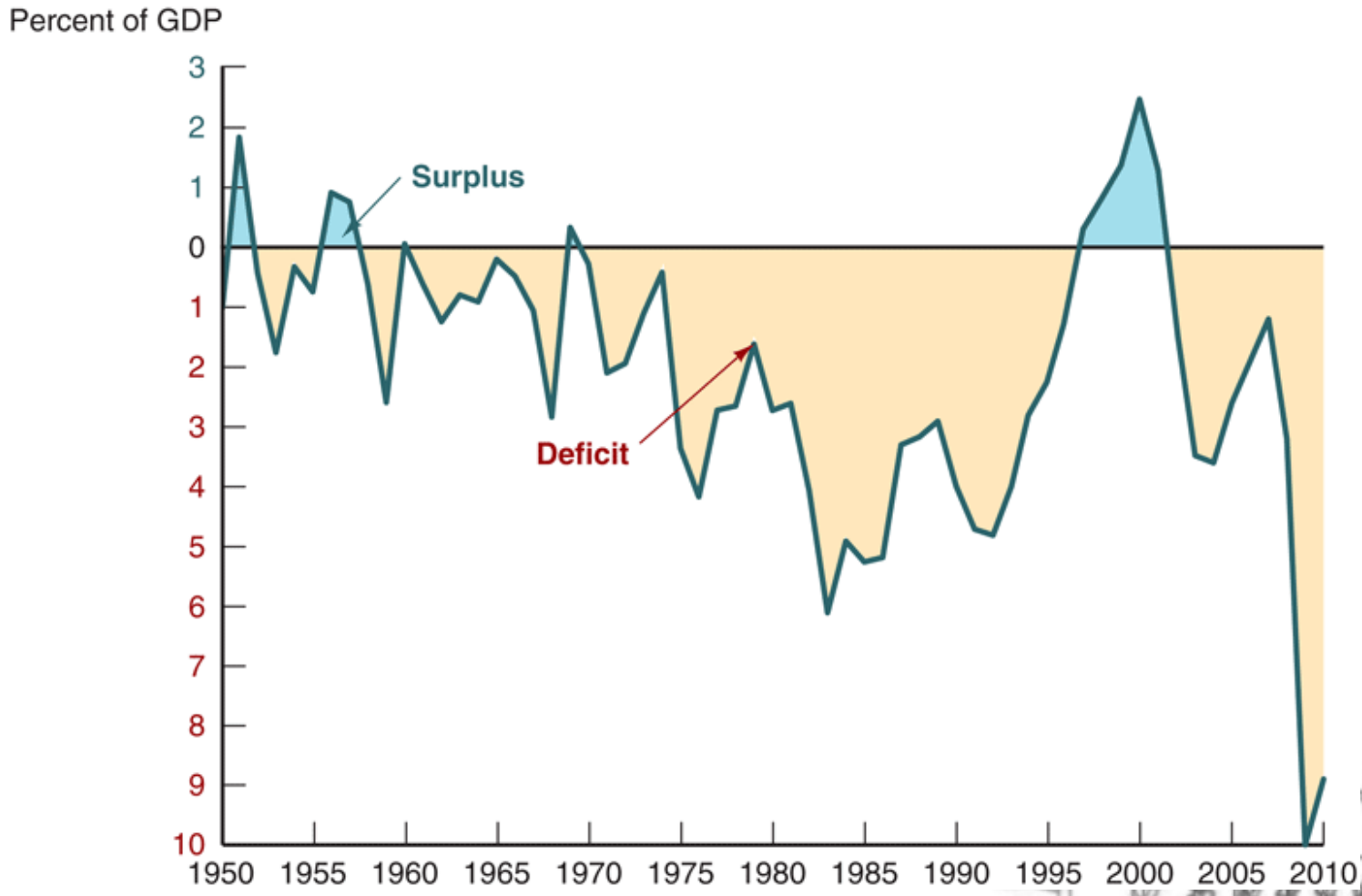
Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

Fiscal Policy and Monetary Policy

- Monetary policy is the management of the money supply and interest rates
  - ➢Conducted in the U.S. by the Federal Reserve System (Fed)

- 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

Government Budget Surplus or Deficit as a Percentage of Gross Domestic Product, 1950–2013



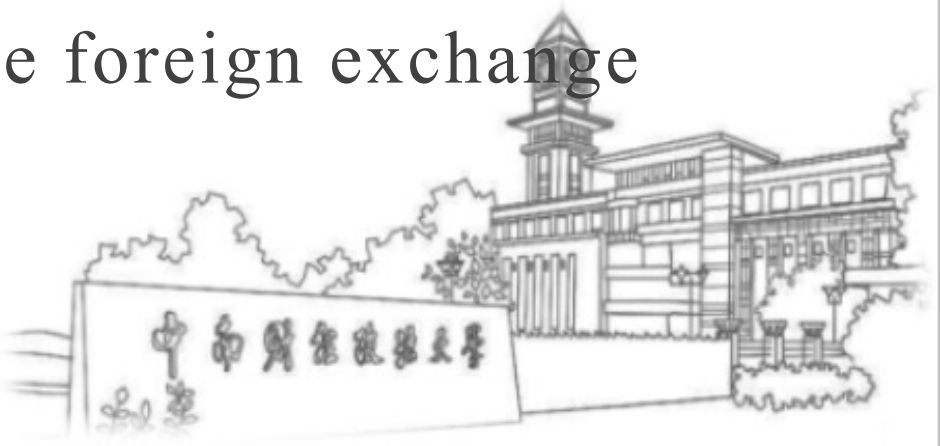
Source: Economic Report of the President, Table B79 at http://www.gpoaccess.gov/eop/tables09.html

The Foreign Exchange Market

The **foreign exchange market**: where funds are converted from one currency into another

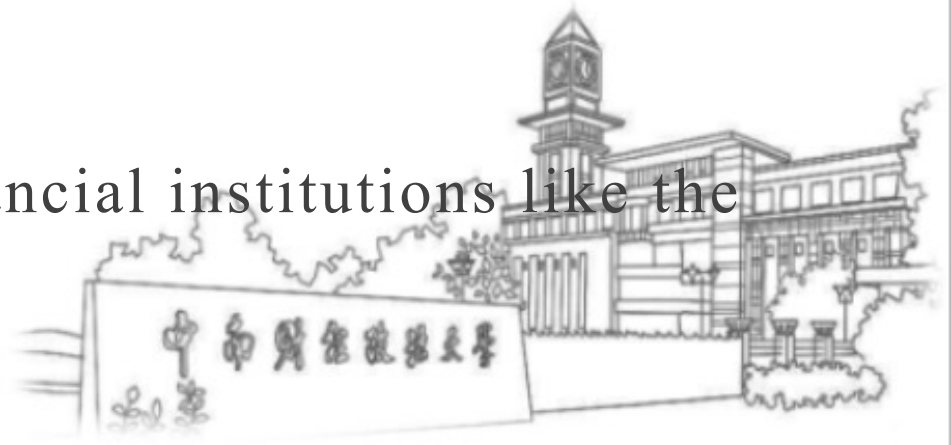
The **foreign exchange rate** is the price of one currency in terms of another currency.

The foreign exchange market determines the foreign exchange rate.



Why Study International Finance?

- Financial markets have become increasingly integrated throughout the world.
- 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?



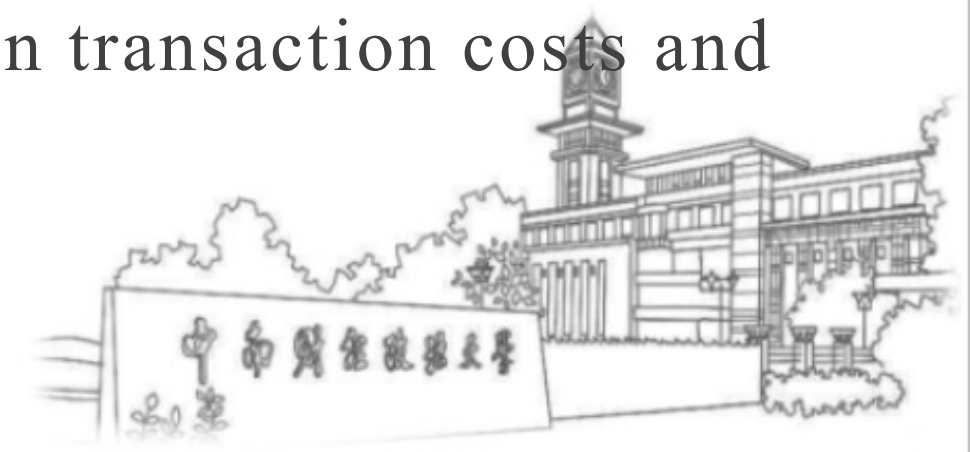
How We Study Financial Markets and Institutions

A simplified approach to the demand for assets

Basic supply and demand to explain behavior in financial markets

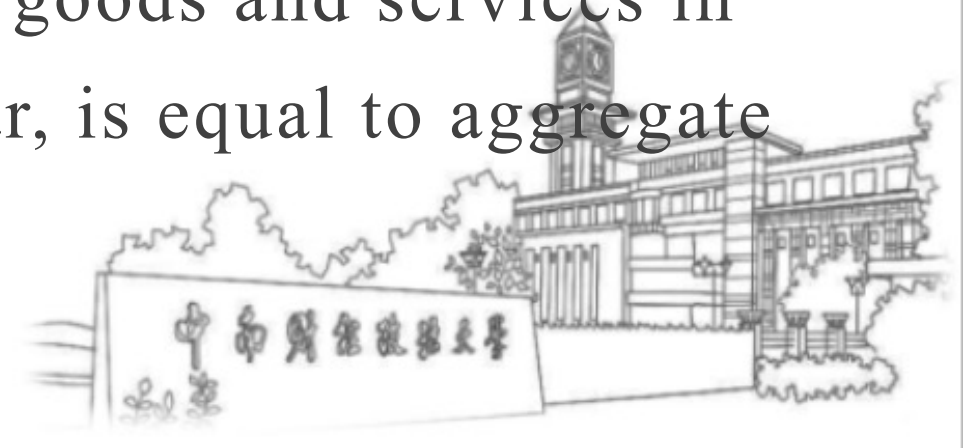
Equilibrium forces & profit seeking behavior

An approach to financial structure based on transaction costs and asymmetric information



Concept: Aggregate Output and Income

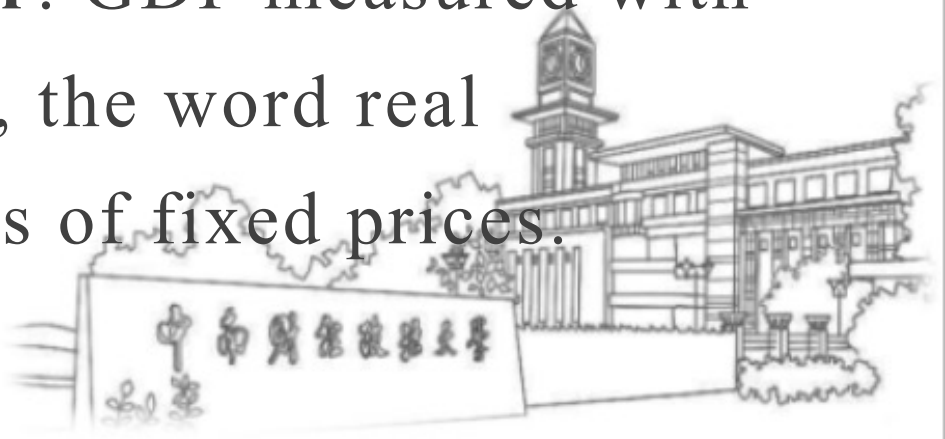
- The most commonly reported measure of aggregate output, the **gross domestic product (GDP)**, is the market value of all final goods and services produced in a country during the course of a year.
- **Aggregate income**, the total income of factors of production (land, labor, and capital) from producing goods and services in the economy during the course of the year, is equal to aggregate output.



Concept: Real versus Nominal Magnitudes

When the total value of final goods and services is calculated using **current prices**, the resulting GDP measure is referred to as **nominal GDP**. The word nominal indicates that values are measured using current prices.

A more reliable measure of economic production expresses values in terms of prices for an arbitrary **base year**. GDP measured with **constant prices** is referred to as **real GDP**, the word real indicating that values are measured in terms of fixed prices.



Concept: Aggregate Price Level

- The **aggregate price level** is a measure of average prices in the economy.
- Three measures of the aggregate price level are commonly encountered in economic data:
  - The GDP deflator
  - The PCE deflator
  - The Consumer Price Index (CPI)

Concept: Growth Rate and the Inflation Rate

A **growth rate** is defined as the percentage change in a variable. For example, if real GDP grew from $9 trillion in 2020 to $9.5 trillion in 2021, then the **real GDP growth rate** is:

($9.5 trillion - $9 trillion)/$9 trillion * 100%=5.6%

The **inflation rate** is defined as the growth rate of the aggregate price level. For example, if the GDP deflator rose from 111 in 2020 to 113 in 2021, the inflation rate is:

(113-111)/111*100%=1.8%

Chapter 2: An Overview of the Financial System

Chapter Question

You recently developed a life-changing app that can benefit millions of lives in the world. But you need money to market this app and build your business upon this app.

At the same time, I have some money to invest for retirement.

If we could get together, perhaps both of our needs can be met. But how does that happen?

Can we just meet up in a café and figure out the rest boring transaction details by ourselves under the whiteness of the barista?

Chapter Roadmap

In this chapter, we study the effects of financial markets and institutions on the economy, and look at their general structure and operations.

Topics include:

- Function and Structure of Financial Markets
- Internationalization of Financial Markets
- Types and Functions of Financial Intermediaries
- Regulation of the Financial System

Function of Financial Markets

Performs 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.

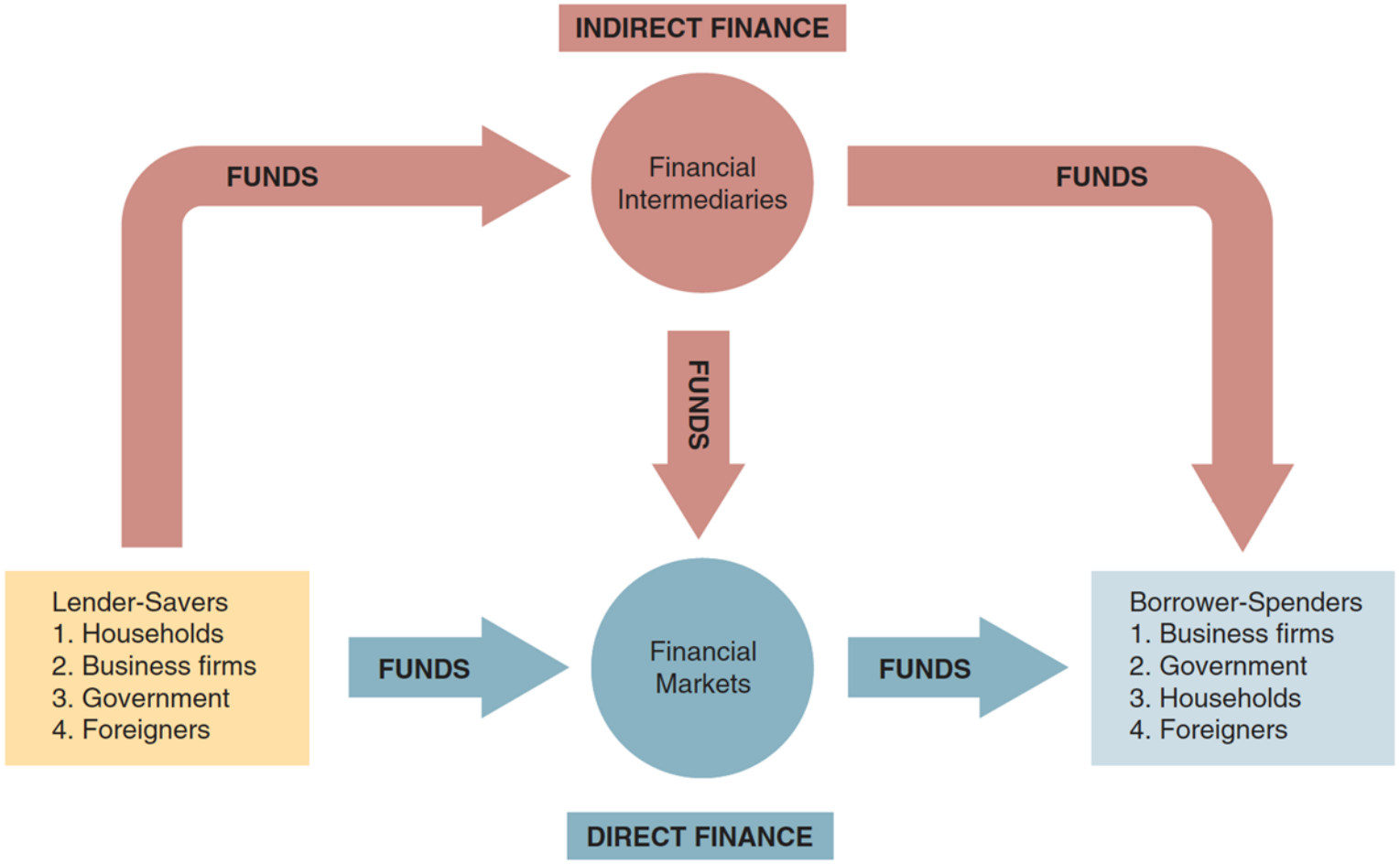
Directly improve the well-being of consumers by allowing them to time purchases better.

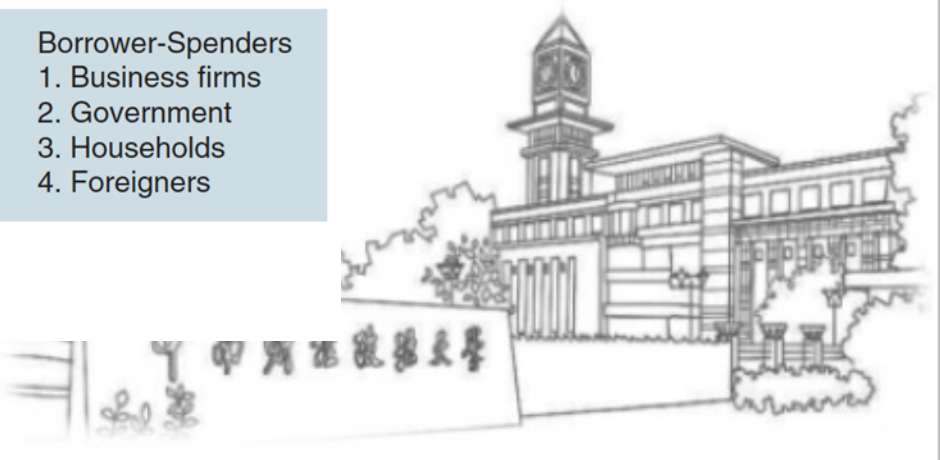
Segments of Financial Markets

Direct Finance: borrowers borrow directly from lenders in financial markets by selling financial instruments which are claims on the borrower's future income or assets.

Indirect Finance: Borrowers borrow indirectly from lenders via financial intermediaries (established to source both loanable funds and loan opportunities) by issuing financial instruments which are claims on the borrower's future income or assets.

Flows of Funds Through the Financial System



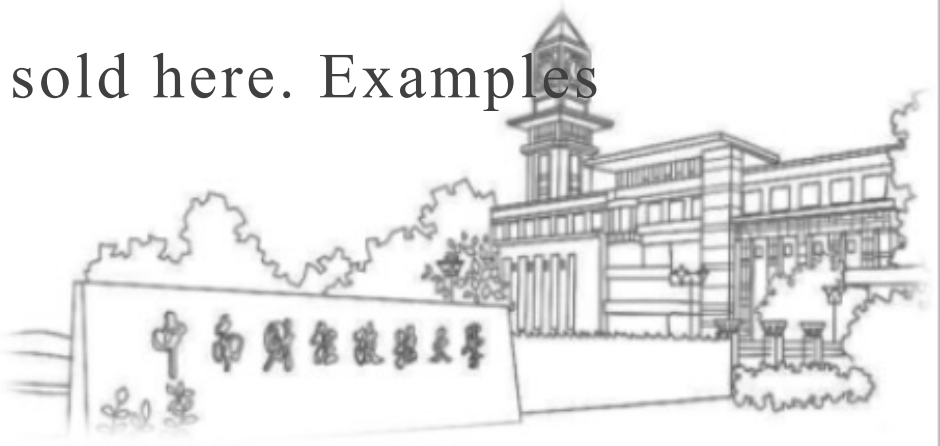


Structure of Financial Markets

- **Debt Markets**
  - ➢Short-Term (maturity < 1 year)
  - ➢Long-Term (maturity > 10 year)
  - ➢Intermediate term (maturity in-between)
- **Equity Markets**
  - ➢Equity refers to a portion of a company that is owned by its investors.
  - ➢The most common equity is shares of stock
  - ➢Pay dividends, in theory forever

Structure of Financial Markets

- **Primary Market**
  - ➢New security issues sold to initial buyers
  - ➢Who does the issuer sell to in the Primary Market?
  - ➢Investment bank underwrites securities: it guarantees a price for a corporation's securities and then sells them to the public.
- **Secondary Market**
  - ➢Securities previously issued are bought and sold here. Examples include the NYSE and Nasdaq
  - ➢Who trades?



Why the secondary market exists?

Even though firms don't get any money, per se, from the secondary market, it serves two important functions:

1. Provide liquidity, making it easy to buy and sell the securities of the companies
2. Establish a price for the securities

More on Secondary Markets

We can further classify secondary markets as follows:

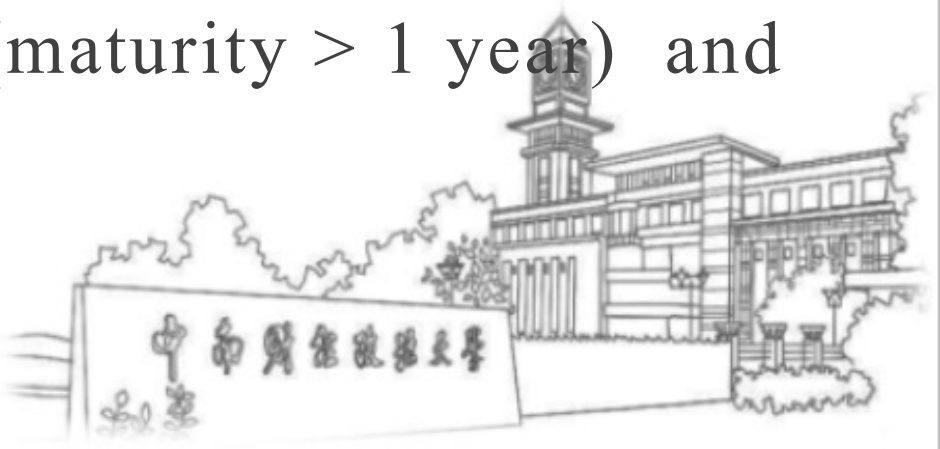
- **Exchanges**
  - ➢Trades conducted in central locations
  - ➢For example, NYSE, Chicago Board of Trade
- **Over-the-Counter (OTC) markets**:
  - ➢Dealers at different locations buy and sell
  - ➢Foreign exchange, Federal funds

Classifications of Financial Markets

We can also further classify markets by the maturity of the securities:

Money markets deal in short-term debt instruments (maturity <= 1 year)

Capital markets deal in longer-term debt (maturity > 1 year) and equities



Financial Market Instruments

TABLE 1 Principal Money Market Instruments

Type of Instrument	Amount ($ billions, end of year) 1980	1990	2000	2013
U.S. Treasury bills	216	527	647	1,591
Negotiable bank certificates of deposit (large denominations)	317	543	1,053	1,762
Commercial paper	122	557	1,619	951
Federal funds and security repurchase agreements	64	388	768	1,919

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

Financial Market Instruments

TABLE 2 Principal Capital Market Instruments

Type of Instrument	Amount ($ billions, end of year) 1980	1990	2000	2013
Corporate stocks (market value)	1,601	4,146	17,627	21,363
Residential mortgages	1,106	2,886	5,463	9,863
Corporate bonds	366	1,008	2,230	6,436
U.S. government securities (marketable long-term)	407	1,653	2,184	4,359
U.S. government agency securities	193	435	1,616	6,199
State and local government bonds	310	870	1,192	2,925
Bank commercial loans	459	818	1,091	1,175
Consumer loans	355	813	536	679
Commercial and farm mortgages	352	829	1,214	2,463

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

Internationalization of Financial Markets

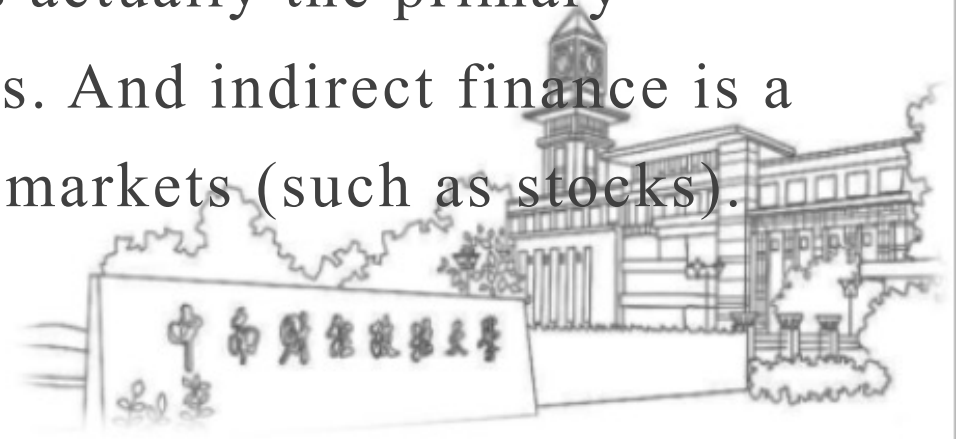
- **Foreign Bonds**: sold in a foreign country and denominated in that country's currency
- **Eurobond**: bond denominated in a currency other than that of the country in which it is sold
- **Eurocurrencies**: foreign currencies deposited in banks outside the home country
  - **Eurodollars**: U.S. dollars deposited in foreign banks outside the U.S. or in foreign branches of U.S. banks
- **World Stock Markets**:
  - Help finance foreign entities, like the US government

Function of Financial Intermediaries: Indirect Finance

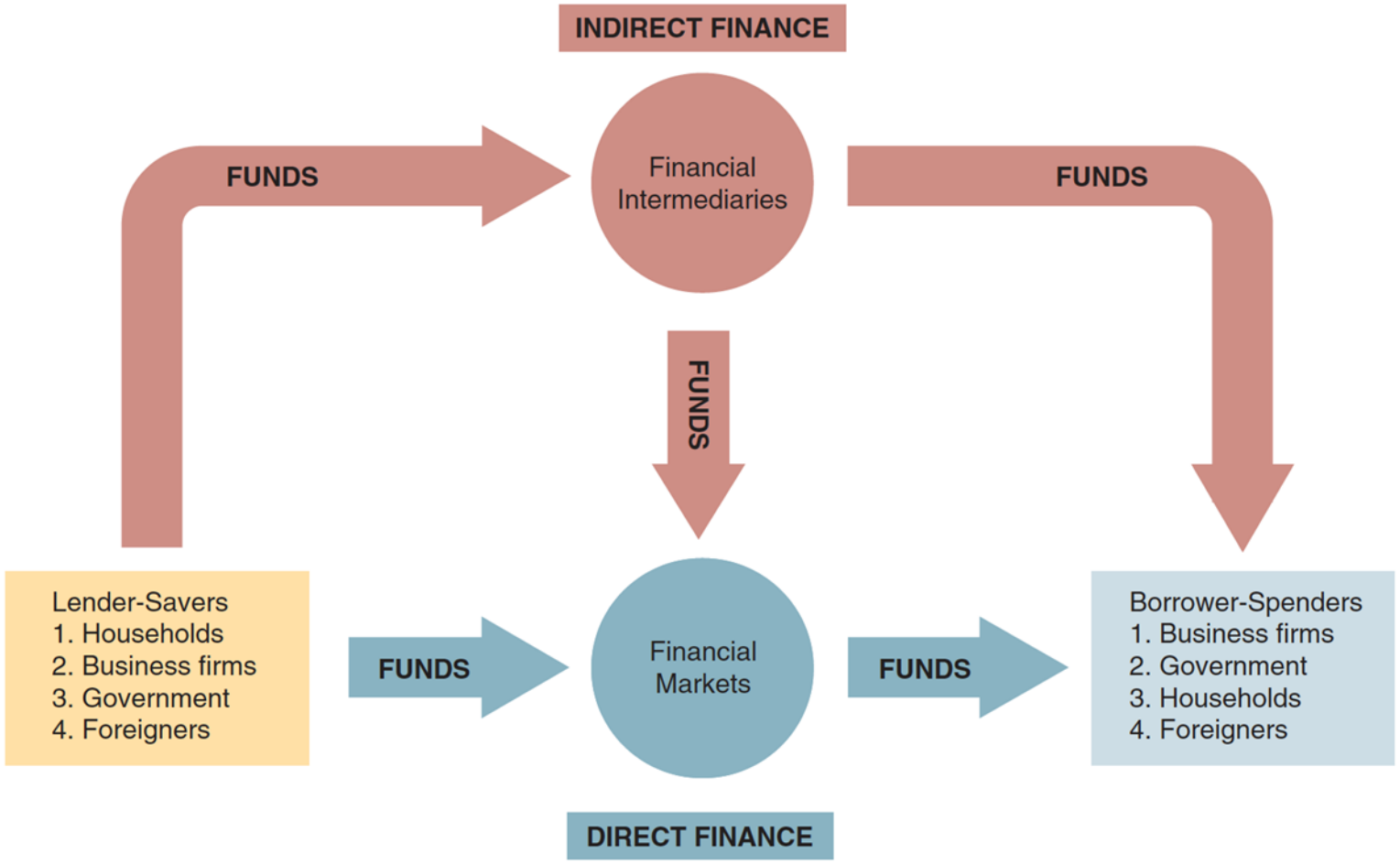
Instead of savers lending/investing directly with borrowers, a **financial intermediary** (such as a bank) plays as the middleman:

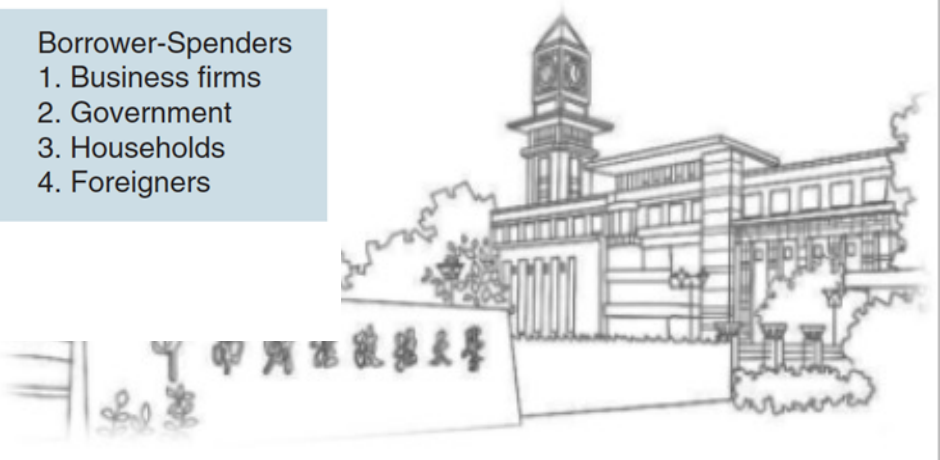
- the intermediary obtains funds from savers
- the intermediary then makes loans/investments with borrowers

This process, called **financial intermediation**, is actually the primary means of moving funds from lenders to borrowers. And indirect finance is a more important source of finance than securities markets (such as stocks).



Flows of Funds Through the Financial System

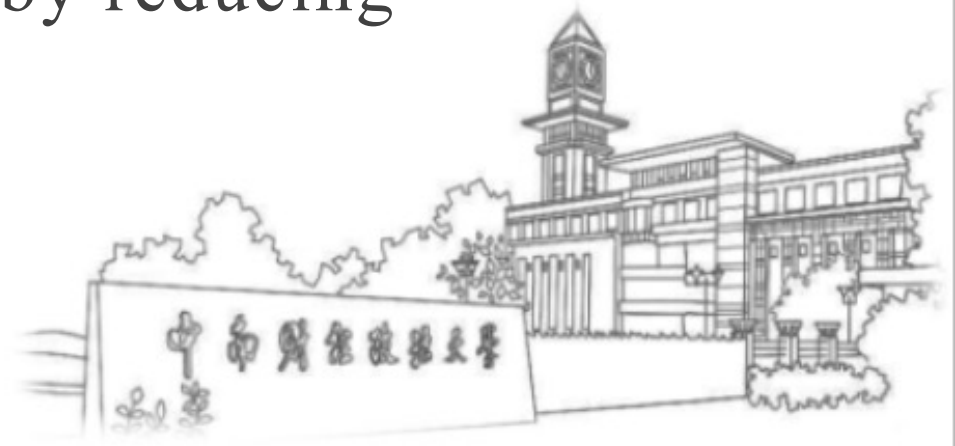




Why do we need indirect finance?

Lower transaction costs (time and money spent in carrying out financial transactions)

- Reduce transactions costs by developing expertise and taking advantage of economies of scale
- Financial intermediaries make profits by reducing transactions costs (service fee)



Why do we need indirect finance?

A financial intermediary's low transaction costs mean that it can provide its customers with **liquidity services**:

- Banks provide depositors with checking accounts that enable them to pay their bills easily
- Depositors can earn interest on checking and savings accounts and yet still convert them into goods and services whenever necessary

Why do we need indirect finance?

Financial intermediaries (FI) can help reduce the exposure of investors to risk through the process known as **risk sharing:**

- FI sells assets with lesser risk to one party in order to buy assets with higher risk from another party. FI earns a profit on the spread between the returns on risky assets and the payments they make on the lesser risk asset they sold.
- This process of risk sharing is also referred as **asset transformation**.

Why do we need indirect finance?

Thanks to low transaction costs, financial intermediaries also help by providing the means for individuals and businesses to diversify their asset holdings.

Diversification entails investing in a collection (**portfolio**) of assets whose returns do not always move together, with the result that overall risk is lower than for individual assets.

Why do we need indirect finance?

Deal with asymmetric information problems:

- **Adverse Selection** (before the transaction): try to avoid selecting the risky borrower by gathering information about them
- **Moral Hazard** (after the transaction): ensure borrower will not engage in activities that will prevent him/her to repay the loan.

Another view of moral hazard is **conflicts of interest**.

Types of Financial Intermediaries

TABLE 3 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
Hedge funds	Partnership participation	Stocks, bonds, loans, foreign currencies, and many other assets

Types of Financial Intermediaries

TABLE 4 Primary Financial Intermediaries and Value of Their Assets

Type of Intermediary	Value of Assets ($ billions, end of year) 1980	1990	2000	2013
Depository institutions (banks)				
Commercial banks	1,481	3,334	6,469	12,670
Savings and loan associations and mutual savings banks	792	1,365	1,218	2,157
Credit unions	67	215	441	1,005
Contractual savings institutions				
Life insurance companies	464	1,367	3,136	6,035
Fire and casualty insurance companies	182	533	862	1,527
Pension funds (private)	504	1,629	4,355	7,966
State and local government retirement funds	197	737	2,293	4,846
Investment intermediaries				
Finance companies	205	610	1,140	1,474
Mutual funds	70	654	4,435	11,527
Money market mutual funds	76	498	1,812	2,678

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

Importance of Financial Markets

Now let us go back to the beginning question. Will financial markets help us to meet our needs?

Regulation of the Financial System

To increase the information available to investors:

- Reduce adverse selection and moral hazard problems
- Reduce insider trading (SEC)

To improve monetary control:

- Reserve requirements
- Deposit insurance to prevent bank panics

Regulation of the Financial System

To ensure the soundness of financial intermediaries:

- Restrictions on entry (chartering process).
- Disclosure of information.
- 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 Rates

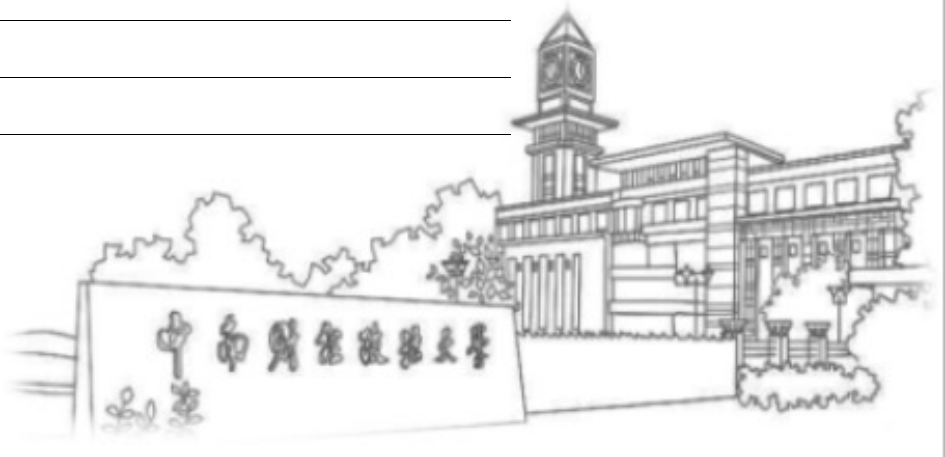
Regulation of the Financial System

TABLE 5 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 and thrift institutions	Charters and examines the books of federally-chartered commercial banks and thrift institutions; 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 and insurance companies	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 and systemically important financial institutions; sets reserve requirements for all banks

Financial Institutions in China

类型		组成
货币当局		中国人民银行;国家外汇管理局
监管当局		中国银行业监督管理委员会;中国证券监督管理委员会;中国保险监督管理委员会
银行业金融机构	银行业存款类金融机构	银行;城市信用合作社;农村信用合作社;农村资金互助社;财务公司;村镇银行
	银行业非存款类金融机构	信托公司;金融资产管理公司;金融租赁公司;汽车金融公司;贷款公司;货币经纪公司
证券业金融机构		证券公司;证券投资基金管理公司;期货公司;投资咨询公司
保险业金融机构		财产保险公司;人身保险公司;再保险公司;保险资产管理公司;保险经纪公司;保险代理公司;保险公估公司;企业年金
交易及结算类金融机构		交易所;证券结算类机构
金融控股公司		中央金融控股公司;其他金融控股公司
其他		小额贷款公司



Chapter 3: What Is Money?

Meaning of Money

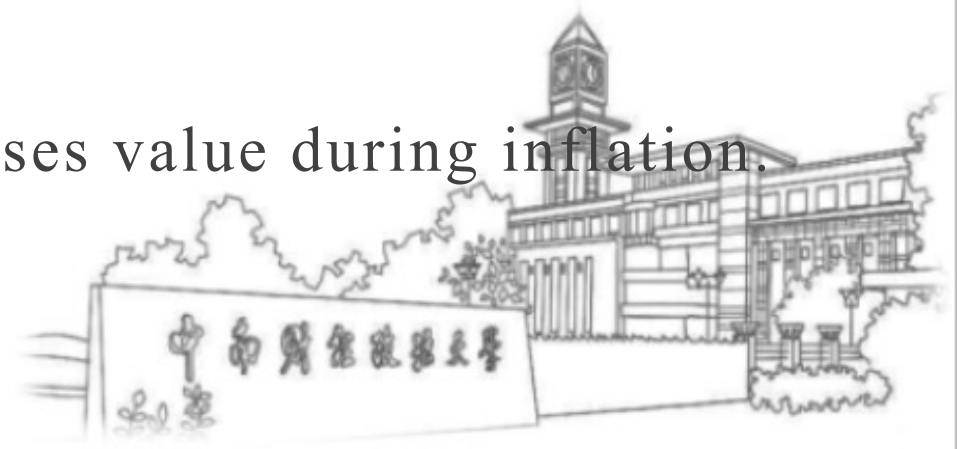
- Money (or the "money supply"): anything that is generally accepted as payment for goods or services or in the repayment of debts. (A rather broad definition)
- Money (a stock concept) is different from:
  - **Wealth**: the total collection of pieces of property that serve to store value
  - **Income**: flow of earnings per unit of time (a flow concept)

Functions of Money

- **Medium of Exchange:**
  - Eliminates the trouble of finding a double coincidence of needs (reduces transaction costs)
  - Promotes specialization
- A medium of exchange must:
  - be easily standardized
  - be widely accepted
  - be divisible
  - be easy to carry
  - not deteriorate quickly

Functions of Money

- **Unit of Account:**
  - ➢Used to measure value in the economy
  - ➢Reduces transaction costs
- **Store of Value:**
  - ➢Used to save purchasing power over time
  - ➢Other assets also serve this function.
  - ➢Money is the most liquid of all assets but loses value during inflation.



Evolution of the Payments System

Commodity Money: valuable, easily standardized and divisible commodities (e.g. precious metals, cigarettes)

Fiat Money: paper money decreed by governments as legal tender

Evolution of the Payments System

- **Checks**: an instruction to your bank to transfer money from your account
- **Electronic Payment** (e.g. online bill pay).
- **E-Money** (electronic money):
  - ➢Debit card
  - ➢Stored-value card (**smart card**)
  - ➢**E-cash**

Are We Headed for a Cashless Society?

Predictions of a cashless society have been around for decades, but they have not come to fruition.

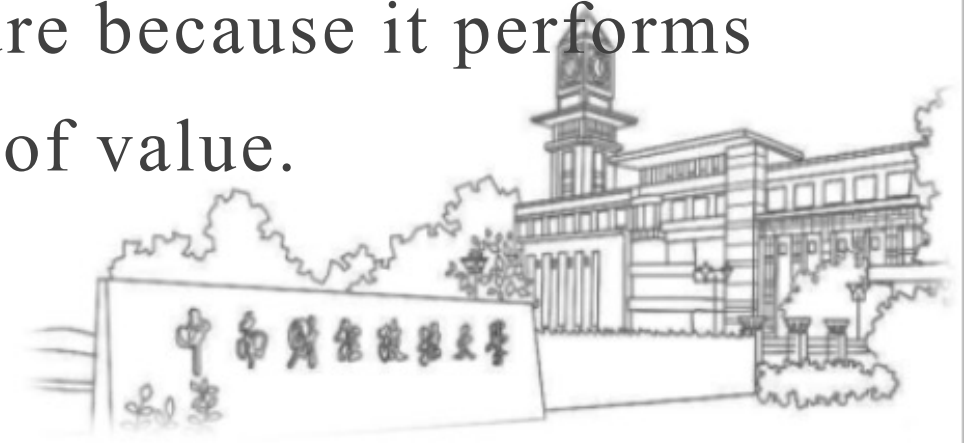
Although e-money might be more convenient and efficient than a payments system based on paper, several factors work against the disappearance of the paper system.

However, the use of e-money will likely still increase in the future.

What do you think?

Will Bitcoin Become the Money of the Future?

- Bitcoin is type of electronic money created in 2009.
- By “mining,” Bitcoin is created by decentralized users when they use their computing power to verify and process transactions.
- Although Bitcoin functions as a medium of exchange it is unlikely to become the money of the future because it performs less well as a unit of account and a store of value.



Measuring Money

How do we measure money? Which particular assets can be called "money"?

Construct **monetary aggregates** using the concept of liquidity:

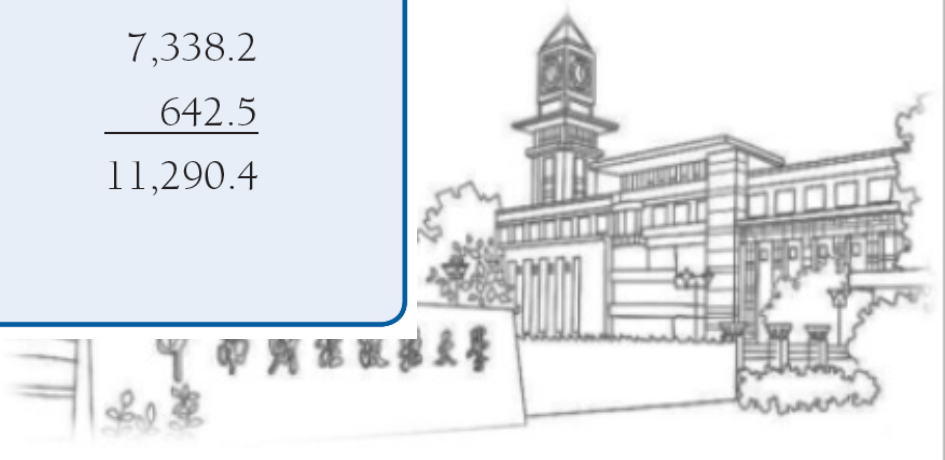
- **M0**: currency (in the hand of public + commercial bank deposits)
- **M1** (most liquid assets) = currency + traveler's checks + demand deposits + other checkable deposits
- **M2** = M1 + small denomination time deposits + savings deposits and money market deposit accounts + money market mutual fund shares

The Federal Reserve's Monetary Aggregates

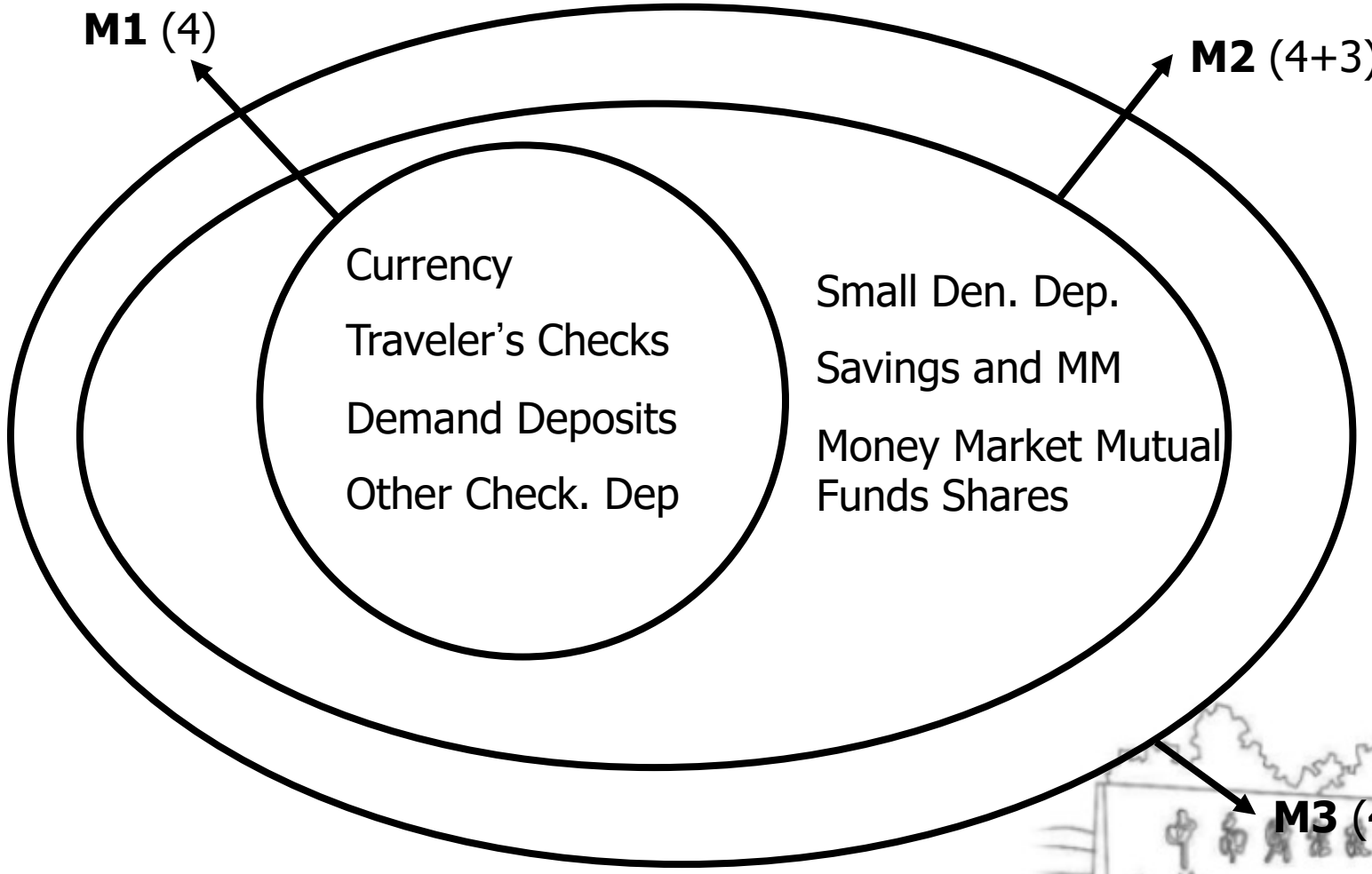
TABLE 1 Measures of the Monetary Aggregates

	Value as of August 18, 2014, ($ billions)
M1 = Currency	1,206.1
+ Traveler's checks	3.3
+ Demand deposits	1,089.9
+ Other checkable deposits	477.4
Total M1	2,776.7
M2 = M1	
+ Small-denomination time deposits	533.0
+ Savings deposits and money market deposit accounts	7,338.2
+ Money market mutual fund shares (retail)	642.5
Total M2	11,290.4

Source: http://www.federalreserve.gov/releases/h6/hist.



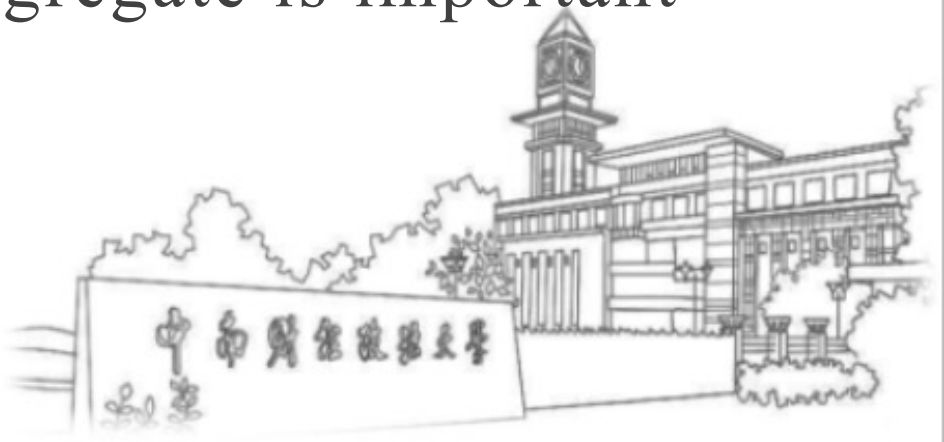
The Federal Reserve's Monetary Aggregates



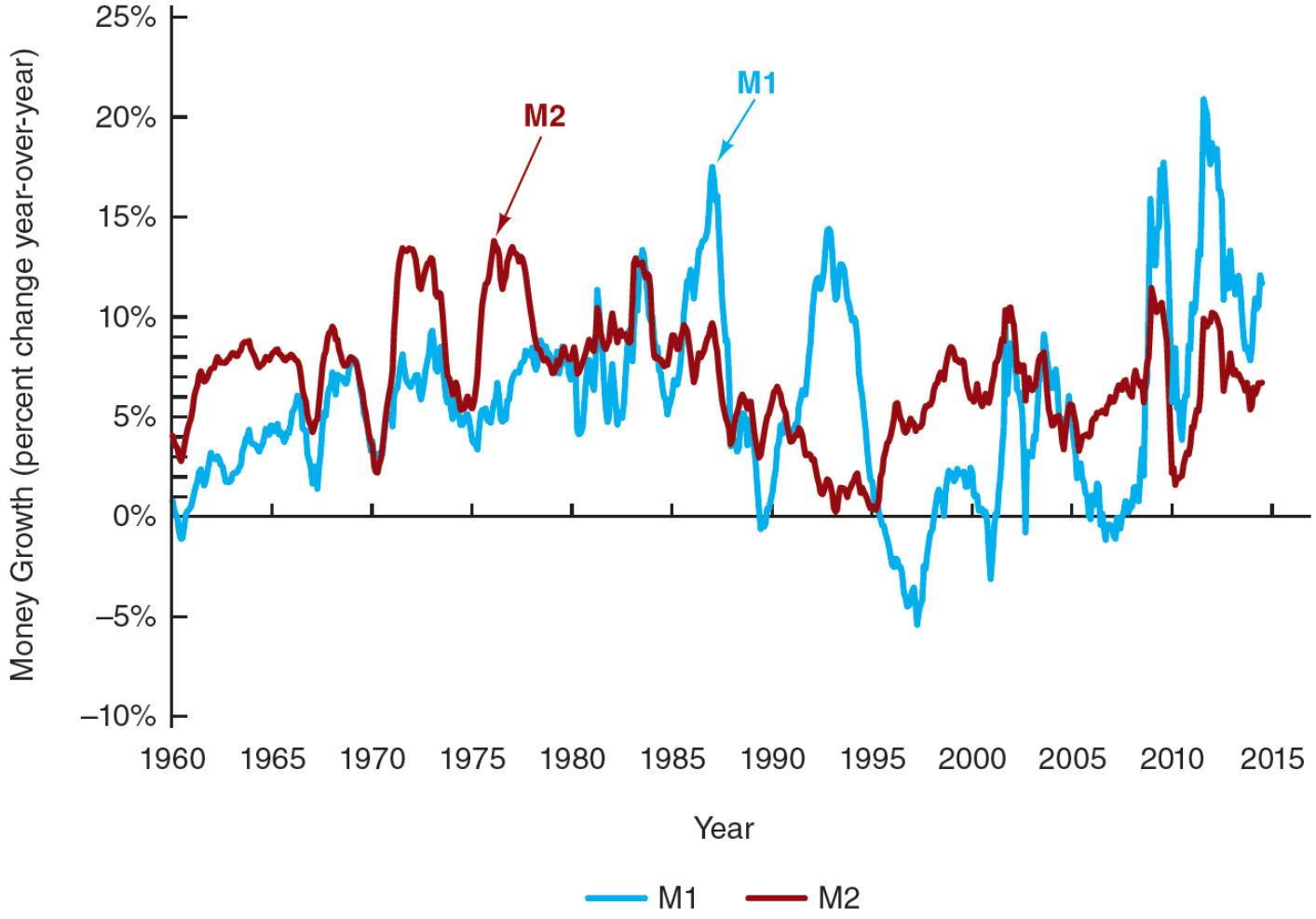
The Federal Reserve's Monetary Aggregates

M1 versus M2: Does it matter which measure of money is considered?

- M1 and M2 can move in different directions in the short run (see figure).
- Conclusion: the choice of monetary aggregate is important for policymakers.



Growth Rates of the M1 and M2 Aggregates, 1960–2014



Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

Where Are All the U.S. Dollars?

The more than $4,000 of U.S. currency held per person in the United States is a surprisingly large number.

Where are all these dollars and who is holding them?

- Criminals
- Foreigners

Q: Will this phenomenon also be observed on CNY?

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