EE432 Monetary Theory and Policy

Lecture 1 Money and the Financial System

Dr. Chamadanai Marknual
Faculty of Economics, Thammasat University
Semester 1/2019

Course Evaluation

- EE432 is textbook-based.
- Students are required to read all lecture notes and should have access to this online textbook. The primary text book is:

  Cecchetti, Stephen and Schoenholtz, Kermit. (2017) **Money, banking, and financial markets**. McGraw-Hill.

Course Evaluation

The course will be assessed by

- Pre-class reading 10%
- After-class quiz assignments 15%
- Individual report assignment 10%
- Mid-term examination 25%

    5 October 2019, 09.00 - 11.00 AM

- Final examination 40%

    7 December 2019, 09.00 - 12.00 AM

Course Evaluation

- **Individual pre-class reading 10%**
  - ➢ 10 times throughout semester as details shown in the class schedule

- **Individual after-class quiz assignments (multiple choices) 15%**

  3 times throughout semester, each worth 5%.

  The dates below are the due dates for the out-of-class quiz assignments:

  - ➢ *Quiz assignment 1 (covering textbook chapter 4-9): 14 September*
  - ➢ *Quiz assignment 2 (covering textbook chapter 15-18): 26 October*
  - ➢ *Quiz assignment 3 (covering textbook chapter 20-22): 23 November*

Class Schedule

Week	Topic	Date
1	Money and the Financial System (Cecchetti & Schoenholtz Textbook Chapter 1-3)	17 Aug 2019
2	Present value, interest rate and risk (Cecchetti & Schoenholtz Textbook Chapter 4-5) # Pre-class reading 1 for Chapter 4-5, worth 1%	24 Aug 2019
3	Bond price and term structure of interest rates (Cecchetti & Schoenholtz Textbook Chapter 6-7) # Pre-class reading 2 for Chapter 6-7, worth 1%	31 Aug 2019
4	Stocks and Derivatives (Cecchetti & Schoenholtz Textbook Chapter 8-9) # Pre-class reading 3 for Chapter 8-9, worth 1%	7 Sep 2019
5	Foreign Exchange (Cecchetti & Schoenholtz Textbook Chapter 10) # Pre-class reading 4 for Chapter 10, worth 1%	14 Sep 2019
6	The Economics of Financial Intermediation (Cecchetti & Schoenholtz Textbook Chapter 11-12) # Pre-class reading 5 for Chapter 11-12, worth 1%	21 Sep 2019
7	Financial Industry Structure (Cecchetti & Schoenholtz Textbook Chapter 13-14)	28 Sep 2019

Week	Topic	Date
8	Central banks (Cecchetti & Schoenholtz Textbook Chapter 15, 17)	12 Oct 2019
9	Monetary policy: stabilizing the domestic economy (Cecchetti & Schoenholtz Textbook Chapter 18) *# Pre-class reading 6 for Chapter 18, worth 1%,*	19 Oct 2019
10	Exchange rate policy (Cecchetti & Schoenholtz Textbook Chapter 19) *# Pre-class reading 7 for Chapter 19, worth 1%*	26 Oct 2019
11	Money growth and money demand (Cecchetti & Schoenholtz Textbook Chapter 20) *# Pre-class reading 8 for Chapter 20, worth 1%*	2 Nov 2019
12	Output, inflation, and monetary policy (Cecchetti & Schoenholtz Textbook Chapter 21) *# Pre-class reading 9 for Chapter 21, worth 1%*	9 Nov 2019
13	Understanding business cycle fluctuations (Cecchetti & Schoenholtz Textbook Chapter 22) *# Pre-class reading 10 for Chapter 22, worth 1%*	16 Nov 2019
14	Modern monetary policy and the challenges (Cecchetti & Schoenholtz Textbook Chapter 23)	23 Nov 2019
15	Special topic: New Keynesian monetary economics <u>& Final Exam Revision</u>	30 Nov 2019

Outline

- Six Parts of the Financial System and Five Core Principles of Money and Banking
- Money and How We Use It
- The Payments System
- The Financial Instruments, The Financial Markets and The Financial Institutions

Chapter 1

An Introduction to Money and the Financial System

Six Parts
of the Financial System

Six Parts of the Financial System

1. **Money**

   To ***pay*** for purchases and ***store wealth***.
2. **Financial Instruments**

   To ***transfer*** **resources** _from **savers** to **investors**_ and to ***transfer*** **risk** to those best equipped to bear it.
3. **Financial Markets**
   To ***buy and sell*** financial **instruments**.
4. **Financial Institutions**

   To ***provide access*** to **financial markets**, ***collect*** **information** & provide **services**.
5. **Regulatory Agencies**
   To ***provide*** **oversight** for financial system.
6. **Central Banks**

   To ***monitor*** financial Institutions and ***stabilize*** the economy.

Six Parts of the Financial System

1. **Money**
   - Money has *changed from gold/silver coins* to ***paper currency*** to ***electronic funds***.
   - Cash can be ***obtained from an ATM*** any where in the world.
   - *Bills* are ***paid*** and ***transactions are checked*** online.

Six Parts of the Financial System

2. **Financial instruments**
   - **Transfers resources** from ***savers*** to ***investors***
   - ***Buying and selling*** **individual stocks** used to be only for the wealthy.
   - Today we have ***mutual funds and other stocks*** available through banks or online.
   - Putting together a ***portfolio*** is *open to everyone*.

Six Parts of the Financial System

3. Financial Markets

- Allow the ***buying and selling*** of ***financial instruments*** easily
- Now transactions are ***mostly handled by*** ***<u>electronic markets</u>***.

Six Parts of the Financial System

4. **Financial Institutions**
   - ***Provide*** all the ***services*** of the financial system like ***providing access*** to financial markets and ***gathering information***
   - Banks **began as vaults**, *developed into* **institutions** that ***accepted deposits*** and ***gave loans***, and *evolved to* today's *financial supermarket*.

Six Parts of the Financial System

5. **Government regulatory agencies**
   - Make sure the elements of the ***financial system*** **operate safely and reliably**.
   - They provide wide-ranging ***financial regulation, rules, and supervision***; and ***examine*** the systems a ***bank*** *uses to manage its* ***risk***.

Six Parts of the Financial System

6. **Central banks**
   - They **monitor** and **stabilize** the ***financial system***
   - Central banks **control the availability of money and credit** to promote ***low inflation***, ***sustainable growth*** and ***stability of financial system***.
   - Today's policymakers attempt for **transparency** in ***their operations***.
   - The *financial crisis of 2007-2009* have lead the central banks to ***try many new policy tools***.

Five Core Principles of Money and Banking

Five Core Principles of Money and Banking

1. **Time** has ***value***.
2. **Risk** requires ***compensation***.
3. **Information** is the basis for ***decisions***.
4. **Markets** *determine* ***prices*** and ***allocate resources***.
5. **Stability** *improves* ***welfare***.

Five Core Principles of Money and Banking

Core Principle 1: Time has value

- ***Time* affects** the ***value of financial instruments***.
- **Interest** is paid to ***compensate the lenders*** *for the time the borrowers have their money*.

Five Core Principles of Money and Banking

Core Principle 2: Risk requires compensation

- Under uncertainty, *individuals* will **accept risk** *only if* they are **compensated**.
- In the financial world, ***compensation*** comes *in the form of* **explicit payments**: the *higher the risk* the *bigger the payment*.

Five Core Principles of Money and Banking

Core Principle 3: Information is the basis for decisions

- The **more important decision**, the ***more information we need***.
- **Collection and processing of information** is the ***foundation*** of the ***financial system***.

Five Core Principles of Money and Banking

Core Principle 4: Markets *determine* <u>prices</u> and <u>allocate resources</u>

- Markets are the ***core of the economic system***.
- Markets ***channel*** *resources* and ***minimize*** the ***cost*** of *gathering information* and making *transactions*.

Five Core Principles of Money and Banking

STABILITY

Core Principle 5: Stability improves welfare

- A stable economy ***reduces risk*** and ***improves everyone's welfare***, thus **grows faster** than an unstable one.
- One of the ***main roles*** of **central banks** is ***stabilizing*** the economy.

Chapter 2

Money and the Payments System

Money and How We Use It

Money and How We Use It

- **Money** is *an **asset** that is generally **accepted as payment** for* **goods and services** *or **repayment** of* **debt**.

- **Income** is a ***flow of earnings*** over time
- **Wealth** is the ***value*** of **assets minus liabilities**.
  - ***Money*** *is **one of those assets**.*

Money and How We Use It

Money has *three **characteristics***:

1. It is a **means of payment**
2. It is a **unit of account**, and
3. It is a **store of value**.

The *first characteristics* (***means of payment***) is the ***most important***

Money and How We Use It

Means of Payment

- People <u>insist</u> on **payment *in money***.
  - **Barter** requires a "**double coincidence of wants**".
- Money is ***easier*** and ***finalizes payments*** so there is ***no further claim*** on buyers and sellers.

Money and How We Use It

Unit of Account

- Money is used to **quote prices** and **record debts** - *it is a standard of value*.
- **Prices *provide the information*** needed to ensure **resources are allocated** to their **<u>best uses</u>**.
- Using dollars (or Thai Bahts) *makes **relative price comparisons** easier*.

Money and How We Use It

Store of Value

- A mean of **payment** has to be ***durable*** and ***capable of <u>transferring purchasing power</u>*** from one day to the next.
- **Paper currency** does *degrade*, but is *accepted* at **<u>face value</u>** in transactions.
- Other ***forms of wealth*** are also a ***store of value***: *stocks, bonds, houses*, etc.

Why do we still need to hold money as a store of value? …

Money and How We Use It

Store of Value (cont.)

- Although other stores of value are sometimes better than money, *we hold money* ***because it is liquid***.
- **Liquidity** is *a measure of the* ***ease*** *with which an* ***asset can be turned into*** *a* ***means of payment***.
  - The *more* ***costly*** it is to *convert an asset into money*, the *less liquid it is*.

Money and How We Use It

Store of Value (cont.)

- Financial institutions use:
  - **Market liquidity** - the **ability to sell assets *for money.***
  - **Funding liquidity** - **ability to borrow money** to ***buy securities or make loans***.

The Payments System

The Payments System

- The **payments system** is a *web of **arrangements** that allow for the **exchange of goods and services**, as well as **assets***.
- The **possible methods of payment** are:
  1. **Commodity and Fiat Money**
  2. **Check**
  3. **Electronic Payment** (e-payment)

Commodity and Fiat Monies

- **Commodity monies** are things with ***intrinsic value***.
  - Value comes *from a commodity of which it is made*, for example, silk and salt.
- To be successful, a **commodity money *must be:***
  - **Usable** by most people
  - Can be made into **standardized quantities**
  - **Durable**
  - Easily **transportable**
  - **Divisible** into smaller units

Commodity and Fiat Monies

- **Gold coins** and **notes which is backed by gold**, were used into the 20th century.
- Today, **paper money** is *called* **<u>fiat money</u>**, because its *value comes from government decree*, or *fiat*.
- **Fiat money** is ***government-issued currency***, that is ***<u>not</u> backed by a physical commodity***.
- The **value of fiat money** is *derived from* the relationship between ***supply and demand*** and the ***stability of the issuing government*****.**

Checks

- A **check** is an ***instruction to the bank*** to *take funds from your account* and *transfer* them *to another account.*
  - A ***check*** is therefore **not** a ***final payment*** as currency is - it sets in motion a series of transactions.

Electronic Payments

- **Electronic payments (e-payments)** take the form of:
  - ***Credit*** and ***debit* cards**
  - Electronic funds transfers
  - **Stored-value card**
  - **E-money**

Electronic Payments

- **Debit Cards**
  - *Works like a* ***check*** - **tells the bank to transfer funds** *from your account* ***to another***.
- **Credit Cards**
  - A ***promise by a bank*** to **lend the cardholder** money **to make a purchase**.
- ***Debit and credit cards*** **do not** ***represent money***.

Electronic Payments

- **Electronic funds transfers**
  - ***Movements of funds*** directly ***from one account to another***.
  - Banks use **electronic transfers** *from bank to bank* **transactions**

Electronic Payments

- **Stored-value card**
  - Use it to ***transfer money into the card***, then ***use the card for payment*** *at a merchant*.
  - ***Limited in what can be purchased*** with them.
  - ***Require specific hardware*** by businesses

Electronic Payments

- **E-money**
  - Can be ***used to pay for purchases*** **on the Internet** or **by mobile phone**.
  - You **open an account** by **transferring funds to the issuer** of the e-money.
  - When shopping online, you ***instruct the issuer*** to **send your e-money** *to the* ***merchant***.
  - Really a form of private money, so **not guaranteed by the government**

Chapter 3

Financial Instruments, Financial Markets, and Financial Institutions

The Financial System

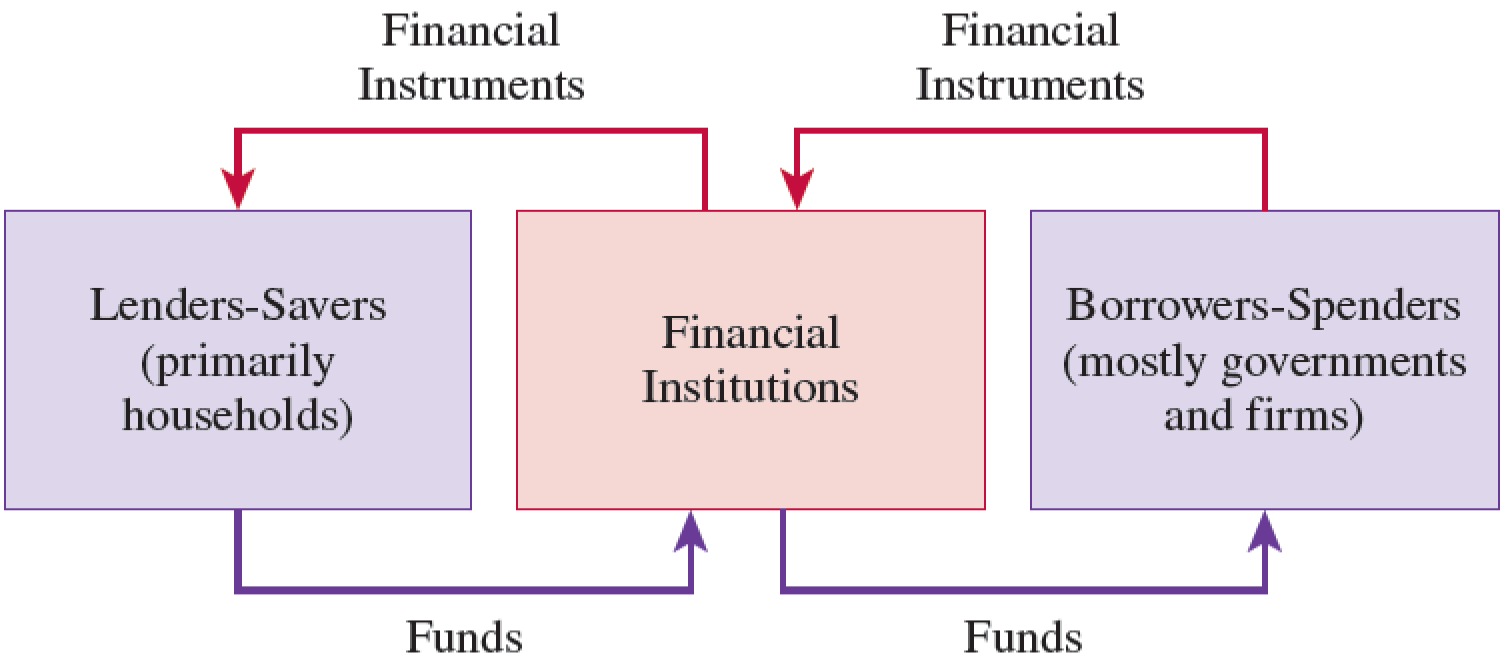
The Financial System

- **Direct Finance:** *Borrowers* ***sell securities (bonds) <u>directly</u>*** to *lenders* in the financial markets.
  – Direct finance *provides financing for* ***governments*** *and* ***corporations****.*
- **Indirect Finance:** An ***<u>institution</u>*** stands **between *lender*** and ***borrower***.
  – We get a **loan *from a bank or finance company* to buy a car.**
- **Asset:** Something of ***value that you own***.
- **Liability:** Something you ***owe***.

The Financial System

- **Financial development** is linked to ***economic growth.***
- The ***role of the financial system*** is to **<u>facilitate</u> production, employment, and consumption.**
- Resources are channeled through the system so that ***resources flow to their <u>most efficient uses.</u>***

Funds Flowing through Financial Market



Financial Instruments

Financial Instruments

Financial Instruments*:*

The **written legal obligation** of **one party *<u>to</u>*** ***<u>transfer something of value</u>***, *usually money*, **to another party** *at some* ***future date***, *under* ***specified conditions***.

Financial Instruments

Financial Instruments*:*

- The ***enforceability*** of the **obligation (requirement)** is ***important***.
- Financial instruments ***specify payment*** *<u>will be made</u>* *at some* ***future date****.*
- Financial instruments ***specify conditions*** *under which a* ***payment*** *will be made*.

Uses of Financial Instruments

- Three functions:
  - Financial instruments act as a **means of payment *(like money).***
    - Employees take **stock options** *as payment* for working.
  - Financial instruments act as **stores of value *(like money)***.
    - Financial instruments can be ***used to transfer purchasing power*** *into the future*.
  - Financial instruments **allow for the *transfer of risk (unlike money).***
    - **Futures and insurance contracts** allows *one person to **transfer risk** to another*.

Characteristics of Financial Instruments

- These contracts are **very complex** thus make it ***costly***.
- **Standardization** of financial instruments ***overcomes potential costs*** of complexity.
- Financial instruments ***also communicate*** **information** about the issuer.

Characteristics of Financial Instruments

- It is a **mechanism** *to* ***reduce the cost of monitoring the behavior*** of **counterparties**.
  - A **counterparty** is the person or institution ***on the other side*** *of* ***the*** **contract**.
- *Financial instruments* are **designed to handle** the *problem* of ***asymmetric information***.
  - *Borrowers* have some information they ***<u>don't disclose</u>*** to **lenders**.

Underlying Versus Derivative Instruments

- **Underlying instruments** are used by ***savers/lenders*** to **transfer resources** directly to ***investors/borrowers***.
  - This *improves* the **efficient allocation** of resources.
    - Examples: **stocks and bonds**
- **Derivative instruments** are those where their ***value and payoffs*** are ***derived*** from the underlying instruments.
  - The primary use is to ***shift risk*** among investors.
    - Examples: **futures, options, and swaps.**

A Primer for Valuing Financial Instruments

Four fundamental **characteristics *influence the <u>value</u>*** of a financial instrument:

1. **Size of the payment**:
   - **Larger** payment - *more valuable*.
2. **Timing of payment:**
   - Payment is **sooner** - *more valuable*.
3. **Likelihood payment is made:**
   - **More likely to be made** - *more valuable*.
4. **Conditions under with payment is made:**
   - Made **when we need** them - *more valuable*.

Financial Instruments Used Primarily as Stores of Value

1. **Bank loans**
   – Borrower *obtains resources* from a ***lender*** to be ***repaid in the future***.
2. **Bonds**
   – A form of a **loan** *issued by a* ***corporation*** or ***government***.
3. **Home mortgages**
   – *Home buyers* usually need to ***borrow*** *using the* ***home*** *as* ***collateral*** for the loan to *protect the* ***lender's*** *interests*.

Financial Instruments Used Primarily as Stores of Value

4. **Stocks**
   – The holder **owns** a small *piece of the* **firm** and *entitled to part of its* ***profits***.
   – Firms *sell stocks* to **raise fund**.
5. **Asset-backed securities**
   – ***Shares in the returns*** arising from specific assets, such as ***home mortgages***.
   • **Mortgage backed securities** bundle a large number of mortgages together into a pool in which shares are sold.

Financial Instruments Used Primarily to Transfer Risk

1. **Insurance contracts.**
   – Primary purpose is ***to assure*** that **payments will be made *under*** particular, and ***often rare***, ***circumstances***.
2. **Futures contracts.**
   – An agreement between two parties to ***exchange a fixed quantity of a commodity*** or an ***asset*** **at a fixed price** on a set **future date**.
   – A ***price*** is always specified.

Financial Instruments Used Primarily to Transfer Risk

3. Options

- *Give the* **holder** the ***right***, <u>not obligation</u>, to ***buy or sell*** a *fixed quantity of the asset* **at a pre-determined price** on either a **specific date** or **at any time during a specified period**.
- ***Derivative instruments*** whose **<u>prices</u>** are based on the ***value of an underlying asset***.

4. Swaps

- ***Agreements*** to **<u>exchange</u>** *two specific* ***cash flows at certain times*** *in the future*.

Financial Markets

Financial Markets

- **Financial markets** are places where ***financial instruments*** are **bought and sold**.
- These markets ***enable*** *both firms and individuals* to **find financing** for their activities.
- These markets ***promote*** **economic efficiency**

The Role of Financial Markets

1. **Market liquidity**:
   - Ensure owners can ***buy and sell*** **financial instruments** cheaply.
   - Keeps ***transactions costs low***.
2. **Information:**
   - ***Pool and communicate information*** about **issuers** of financial instruments.
3. **Risk sharing:**
   - ***Provide individuals*** a place to ***buy and sell risk***.

Primary versus Secondary Markets

- A **primary market** is one in which ***a borrower obtains funds from a lender*** by selling **newly issued** securities.
- **Secondary financial markets** are those where people can ***buy and sell*** **existing securities**.

Debt and Equity versus Derivative Markets

- **Debt markets** are ***markets for loans, mortgages, and bonds***.
  - **Debt instruments** categorized by the ***loan's maturity***
    - ***Repaid in less than a year*** - traded in **money markets.**
    - ***Maturity of <u>more than a year</u>*** - traded in **bond markets.**
- **Equity markets** are the ***markets for stocks***.
- **Derivative markets** are the ***markets where investors trade derivative instruments*** *like futures, options, and swaps*.

Financial Institutions

Financial Institutions

- Firms that **provide access** to the ***financial markets***, both
  - to **savers** who wish to purchase *financial instruments* directly and
  - to ***borrowers*** who *want to issue* them.
- *Also known as* **financial intermediaries**.

The Role of Financial Institutions

- To **reduce transaction costs** by specializing in the ***issuance*** of **standardized securities**.
- To **reduce the information costs** of ***screening*** *and* ***monitoring*** <u>*borrowers*</u>.
  - They curb **asymmetries**, helping resources ***flow to most productive uses***.
- To **give** savers **access to their funds**.

The Structure of the Financial Industry

- We can *divide* **intermediaries** into *2 broad* ***categories***:
  - **Depository institutions**,
    - *Take* **deposits** and *make* **loans**
    - What most people think of as banks
  - **Non-depository institutions**.
    - Include **insurance companies**, **securities firms**, **mutual fund companies**, **hedge funds**, **private equity or venture capital firms**, **finance companies**, and **pension funds**.

The Structure of the Financial Industry

1. **Depository institutions** take *deposits* and make *loans*.
2. **Insurance companies** *accept* ***premiums***, which they invest, in *return for* **promising compensation** to *policy holders* under *certain* ***events***.
3. **Pension funds** *invest* individual and company ***contributions*** in *stocks, bonds, and real estate* in order to ***provide payments*** *to* ***retired workers***.

The Structure of the Financial Industry

4. **Securities firms** include *brokers, investment banks, underwriters, mutual fund companies private equity firms,* and *venture capital firms*.
   - **Brokers and investment banks *issue*** *stocks and bonds* for *corporate customers*, ***trade*** them, and ***advise*** customers.
   - **Mutual-fund companies *pool the resources*** of individuals and companies and ***invest*** them ***in portfolios***.
   - **Hedge funds** do the same for ***small groups of wealthy investors***.
   - **Private equity and venture capital firms** also serve wealthy investors by ***acquiring controlling stakes*** in a few firms and ***manage them*** actively.

The Structure of the Financial Industry

5. **Finance companies *raise funds*** directly ***in the financial markets*** in order ***to make loans*** to individuals and firms.
6. **Government-sponsored enterprises** (GSEs) are federal credit agencies that ***provide loans*** *directly for* ***farmers*** *and* ***home mortgagors***.

End of lecture