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INTRODUCTION TO MONEY AND FINANCE

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Sources:
- Bodie, Z., & Merton, R. (2000), Finance, Prentice Hall Inc.
- Bagley, N. , slides on Finance, Copyright © Prentice Hall Inc. 1999.
- Mishkin, F.S. (2010), *The Economics of Money, Banking and Financial markets*, 9th ed, The Addison – Wesley Series in Economics.

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Lecture program

- Chapter 1: Overview of Money and Finance
- Chapter 2: Interest and Time value of money
- Chapter 3: Financial markets
- Chapter 4: Financial intermediaries
- Chapter 5: Commercial banks
- Chapter 6: Central bank and Monetary policies
- Chapter 7: Corporate finance
- Chapter 8: Government budget

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Reading list

- Prescribed textbook:
  - Bodie, Z., & Merton, R. (2000), *Finance*, Prentice Hall Inc.
- Recommended readings:
  - Brealey, R., et. al. (2009), *Fundamentals of corporate finance*, 6th Ed, McGraw-Hill Irwin
  - Gitman, L., et. al. (2008), *Principles of Managerial Finance,* 5th Ed, Pearson Education Australia
  - Heffernan, S. (2005), *Modern banking*, John Wiley & Sons Ltd
  - Hynman,D.N. (2010), *Public finance* ,10th Ed, South-western
  - Mishkin, F.S. (2010), *The Economics of Money, Banking and Financial markets*, 9th ed, The Addison – Wesley Series in Economics.

Chapter I: Overview of Money and Finance

1. Fundamentals of money
2. Overview of finance

1. Fundamentals of Money

1.1 Meaning of money
1.2 Functions of money
1.3 Forms of money
1.4 Measuring money

1.1. Meaning of money

- Money (also referred as *money supply*) is anything that is generally accepted in payment for goods and services or in the repayments of debts.

Money vs. Currency

- The term "*money*" here is defined by economists with broader meaning than most people think money is, when people talk about "money", they are talking about "*currency*" (paper money and coins).
- Besides currency, there are other means of payment which are considered "money" like checks, checking accounts, other demand deposits...
- *Not only currency is money, anything could be money as long as it is general accepted.*

Money vs. Wealth

- People usually misusing the term "money" with "wealth" as well.
- Economists make a distinction between:
  - Money: currency, demand deposits, and other items that are used to make purchases and
  - Wealth: the total collection of pieces of property that serve to store value.
- Wealth includes not only money but also other assets such as bonds, common stock, art, land, furniture,cars, and houses.

Money vs. Income

- People also use the word “money” to describe what economists call “income”
- *Income* is a flow of earnings per unit of time.
- *Money*, by contrast, is a stock: is a certain amount at a given point in time.

1.2 Functions of money

- Medium of exchange
- Unit of account
- Store of value

Medium of exchange

- In almost all of market transactions in our economy, *money*, in the form of currency and checks is a medium of exchange, it is used to pay for goods and services.
- The use of money as a medium of exchange promote economic efficiency by minimising time spent in exchange goods and services.

Medium of exchange

- Example: What happens if an economic lecturer, who only knows to give economics lectures, want to eat?
  - In the *barter economy*, where there is no money, goods and services must be exchanged directly for other goods and services: The lecturer has to find the farmer who not only provide what she wants to eat but also want to learn economics.
  - This finding is time consuming and difficult. The transaction cost for this process is high.

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Medium of exchange

- Example (c0nt.)
  - With the existence of money, the lecturer simply can give lectures to whoever want to study economics in exchange for money. Then she could come to any farmer to buy the food that she needs using the money that she earned.

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Unit of account

- Money serves as unit of account, that means it is used to measure value in the economy.
- The value of goods and services is measured by money.
- Using money as unit of account reduces transaction cost in an economy by reducing the number of prices that need to be considered. This is more important as the economy becomes more complex.

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Unit of account

- Example:
  - In the barter economy, if there are 3 goods: apples, movies, meats, there are only 3 prices to tell us how to exchange one goods for another:
    - Movies in terms of apples (how many apples you have to pay for a movie)
    - Apples in terms of meats
    - Meats in terms of movies
  - But what will happen if the economy has 1000 goods and services? How many prices do we need?

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Unit of account

- Example (cont.)
  - With the existence of money, with 1000 goods and services we just need 1000 prices, the prices are reflected in terms of money

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Store of value

- Money also functions as a store of value, it is a repository of purchasing power over time. A store of value is used to save purchasing power from the time income is received until the time it is spent.
- This function of money is useful because people usually do not want to spend our income immediately upon receiving it, but rather prefer to wait until we have time or the desire to shop.

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Store of value

- Not only money could be a store of value, many other assets can be used to store wealth.
- But people want to keep money as a store of value because of its liquidity.

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The relative ease and speed with which an asset can be convert to a medium of exchange.

Store of value

- How good a store of value money is depends on the price level.
- In time of inflation or hyperinflation, the price level is increasing rapidly, money loses value rapidly, then people would not prefer hold their wealth in this form.

1.3 Forms of money

Criteria of a commodity to function effective as money:

- Easily standardised, making it simple to ascertain its value
- Widely accepted
- Divisible, so that it is easy to "make change"
- Easy to carry
- Not deteriorate quickly

Form of money

- The form of money has been evolving over times with the development of payment systems:
  - Commodity money
  - Fiat money
  - Checks
  - Electronic payment
  - E-money

Commodity money

- Commodity money is money made up of precious metals or another valuable commodity.
- Commodity money is contain its own full value.
- From ancient times until several hundred years ago, commodity money functioned as the medium of exchange in almost all of the societies.
- Problems:
  - Commodity money is heavy and hard to transport

Paper currency

- Paper currency is a piece of paper that function as a medium of exchange.
- Paper money is not a valuable commodity itself, but it serves as a mean representing value.
  - Initially, paper currency carried a guarantee that it was convertible into coins or into fixed quantity of precious metals.
  - Then it evolved into fiat money, paper currency decreed by governments as legal tender (legally it must be accepted as payment for debts) but not convertible into coins or precious metal.

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Paper money

- Advantages:
  - Lighter than coins or precious metal
  - Countries can change the currency that they use at will
- Disadvantages:
  - It can be accept as a medium of exchange only if there is some trust in the authorities who issue it and if printing has reached a sufficiently advanced stage that counterfeiting is extremely difficult.
  - Could be easily stolen
  - Could be expensive to transport in large amount because of their bulk

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Checks

- A check is an instruction from you to your bank to transfer money from your account to someone else's account when she deposits the check.
- Advantages:
  - Reduce the transaction costs associated with payments system and improve economic efficiency.
  - Can be written for any amount up to the balance in the account, make transaction for large amounts much easier
  - Reduce lost from theft
  - Convenient for purchases
- Disadvantages:
  - Take time to get checks from one place to another
  - Paper shuffling required to process checks is costly

Electronic payment

- Electronic payment enable people to transmit their payments electronically.
- Advantages:
  - Save the transaction cost
  - Require little effort and time.

E-money

- Electronic money (or E-money) is the money that exists only in electronic form.
  - Example: Debit card, E-cash

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1.4 Measuring money

- Money aggregates: Measures of money supply (the US)
  - Narrowest measure of money is M1:

$$M1 = currency + traveler's\ checks + demand\ deposits \\ + other\ checkable\ deposits$$

  - Broader measure of money is M2:

$$M2 = M1 + small\ denomination\ time\ deposits \\ + savings\ deposits\ and\ money\ market\ deposit\ accounts \\ + money\ market\ mutual\ fund\ shares\ (retail)$$

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2. Overview of finance

2.1 Definition of finance
2.2 Financial decisions
2.3 Financial system
2.4 The flow of funds
2.5 The financial functions

2.1. Definition of Finance

- Finance is the study of how people allocate scarce resources *over time*
  - costs and benefits are distributed over time
  - but the actual timing and size of future cash flows are often known only probabilistically
- Understanding finance helps you evaluate these uncertain cash flows

2.1. Definition of Finance

- Financial theory consists of:
  - the set of concepts that help to organize one's thinking about how to allocate resources over time
  - the set of quantitative models used to help evaluate alternatives, make decisions, and implement them

These concepts and models apply at all levels and scales of decision making

2.1. Definition of Finance

- A basic tenet of finance is that the existence of economic organizations (e.g. firms and governments) facilitate the satisfaction of people's *consumption preferences*

2.2. Financial Decisions

- Financial decisions of households
- Financial decisions of business firms
- Financial decisions of governments

Financial Decisions of Households

- Consumption and saving decisions
- Investment Decisions
- Financing Decisions
- Risk-management decisions

Important Terms

- Assets
- Personal investing & Asset allocation
- Liability, Debt
- Net Worth = Assets - Liabilities

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Financial Decisions of Firms

- Business Firms
  - entities whose primary function is to produce goods and services
  - they vary widely in size from part-time businesses run from a spare room, to giant corporations (e.g. Mitsubishi or General Motors) with hundreds of thousands of employees, and an even larger ownership

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Financial Decisions of Firms

- Strategic plans specify the business the firm is in
  - strategic plans may change radically over time
  - the firm’s business may be defined in terms of a group of products, technologies or customers

Financial Decisions of Firms

- The Capital Budgeting Process
  - The preparation of a plan for acquiring factories, machinery, research laboratories, show rooms, warehouses, and human assets to implement the strategic plan
  - The basic unit of analysis is the *investment project*. Investment projects are identified, triaged, and implemented in the capital budgeting process

Financial Decisions of Firms

- The Financing Process
  - Once a new set of approved projects has been identified, it must be financed with retained earnings, stock, bonds, et cetera
  - *Capital structure* is the amount of the firm's market value allocated to each category of issued securities. It determines ownership and risk level of the firms future cash flows
  - *Capital structure's* unit of analysis is the firm as a whole (not an investment project)

Financial Decisions of Firms

- The capital structure also determines who controls the firm under different contingencies
  - Common stock holders usually determine the membership of the board of directors
  - Preferred stock holders usually gain some control if preferred dividends are not paid
  - Bondholder covenants restrict decisions that could adversely affect bond values

Financial Decisions of Firms

- Working Capital
  - all firms (including highly profitable ones) that do not pay sufficient attention to working capital management may be seriously damaged by the resulting
  - loss of investor and creditor confidence
    - delayed in investment schedules
    - sub-optimal temporary finance
    - unscheduled sale of the firms assets

Financial Decisions of Governments

- Identify expenditure required for running its bodies
- Sources of revenue
- The budgeting process
- Debt issuances for public projects

2.3. Financial System

- Financial decisions are made within the context of a financial system
- The financial system both constrains and enables the decision maker

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2.3. Financial System

- *Financial System* is defined as *the set of markets and other institutions used for financial contracting and exchange of assets and risks*
- A Financial System is comprised of
  - markets, intermediaries, service firms and other institutions used to carry out the financial decisions of households, business firms, and governments

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2.3. Financial System

- Geography of Markets:
  - some markets for a particular market instrument may have a well defined geographic location such as the New York Stock Exchange or the Osaka Options and Futures Exchange
  - other market instruments are traded on over-the-counter or off-exchange markets for bonds, stocks, and foreign exchange

Financial Markets: By Basic Financial Assets

- Debt (Also called fixed income securities, Bonds and Loans)
- Fixed Income Instruments promising fixed future payments
- Equities (Common Stock/Shares)
- Residual claim on assets. Limited liability
- Derivatives (Options, Forwards, Futures)
- Securities that derive their value from other securities

Financial Markets: By Maturity

- Money Market
  - Mostly debt instruments issued by governments and secure large corporations
  - Highly liquid: Quickly convertible to cash
  - Globally integrated
- Capital Market
  - Equities, and debt instruments with a life greater than a year

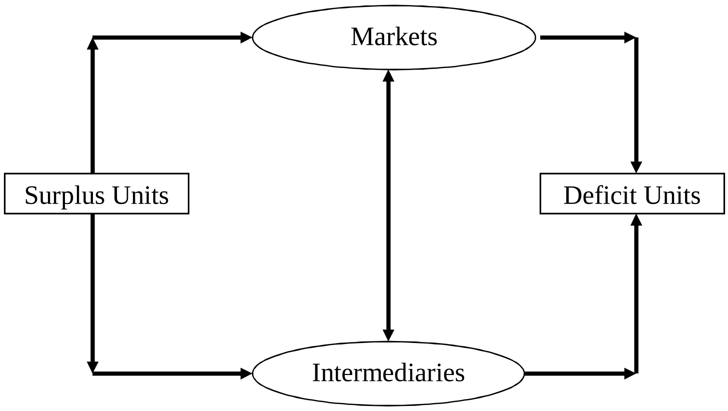
2.3. Financial System

- Financial intermediary: a firm whose primary business is to provide financial services and financial products
- Examples:
  - bank (checking accounts, loans, CDs ...)
  - investment company (mutual funds ...)
  - insurance company (term life insurance ...)

2.4. The flows of fund

- Funds may flow from the surplus unit to the deficit unit
  - Directly
  - Through markets
  - Through intermediaries

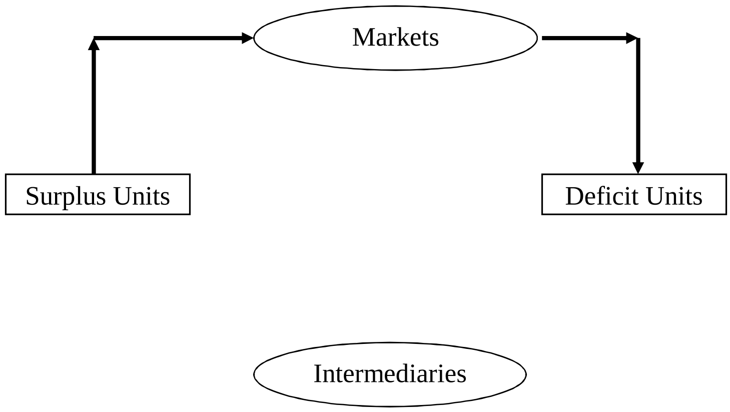
The Flow of Funds Diagram



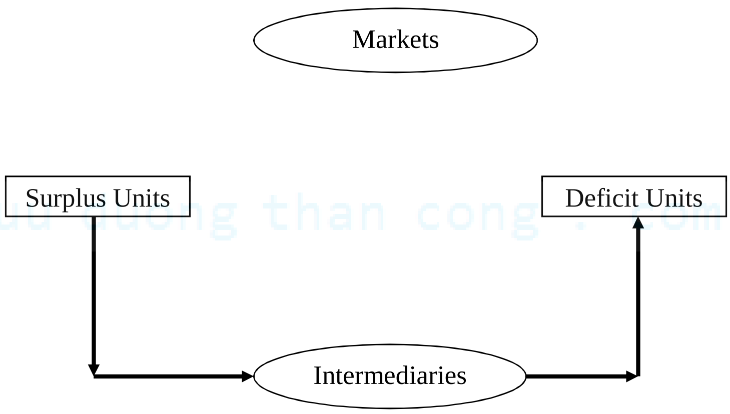
The Flow of Funds Diagram

- We shall examine various pathways from the *surplus unit* to the *deficit unit*

Fund Flows via Market



Fund Flows via Intermediary



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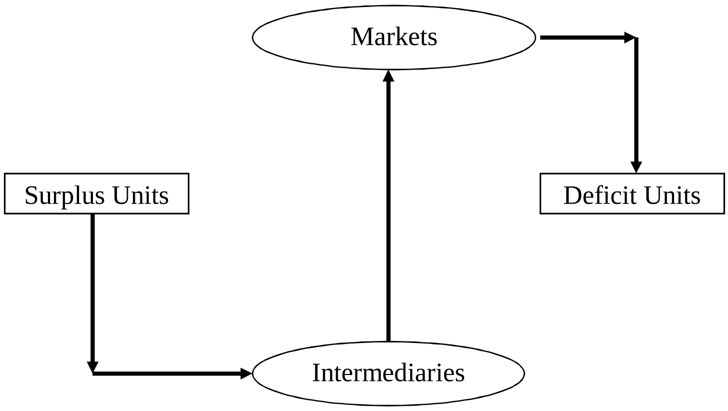
Fund Flows via Intermediary and Market



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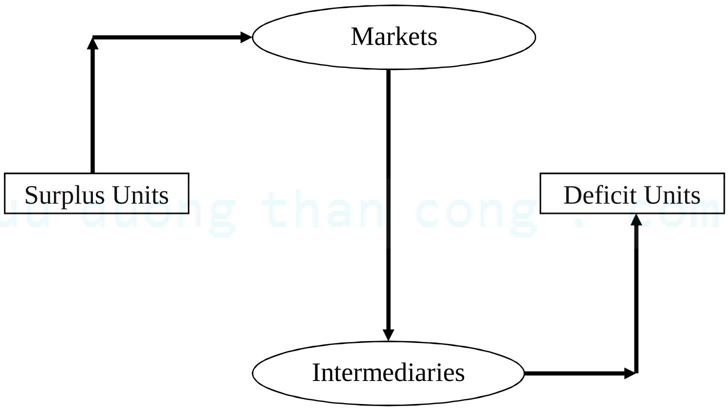
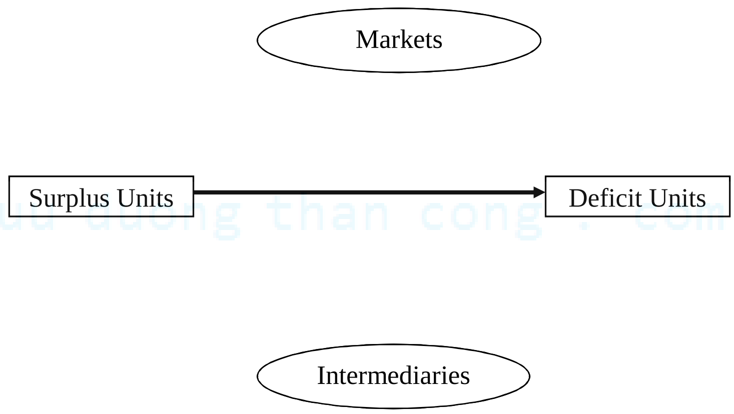
Funds Flow via Markets and Intermediaries



Funds Flow: Disintermediation

- Sometimes the cost of using markets and intermediaries cannot be justified, and surplus units and deficit units contract directly
- at its discretion, the deficit unit may repurchase contracts before their maturity, (at a proper discount), to avoid disrupting secondary markets, and to add liquidity

Funds Flow: Disintermediation



2.5. Financial Functions

- Transferring Resources Across Time & Space
- Managing Risk
- Clearing and Settling Payments
- Pooling Resources and Subdividing Shares
- Providing Information
- Dealing with Incentive Problems

Transferring Resources Across Time and Space

- A financial system provides ways to transfer economic resources through time, across geographic regions, and amongst industries

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Transferring Resources Across Time and Space (Illustration)

- A Dutch household currently has excess funds needed in ten years
- A Chinese business would become more profitable with new investment funds

• Financial markets make this match

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Managing Risk

• A financial system provides ways to manage Risk

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Managing Risk

- Future flows have associated risks. Like flows, risks may be unbundle and repackaged by a financial system using portfolios, financial derivatives, and guarantees
- Many financial contracts target risks rather than flows

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Managing Risk

- A fund manager may increases risk (and expected returns) of a fund by issuing bonds secured against the funds assets, writing put options, buying call options, and going “long” market index futures
- Another fund manager may decrease risk by investing in the money market, put options, and short index futures

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Clearing and Settling Payments

- A financial system provides ways of clearing and settling payments to facilitate the exchange of goods, services, and assets

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Pooling Resources and Dividing Ownership in Large Assets

- A financial system provides a mechanism for the pooling of funds to undertake large-scale indivisible enterprise or for the subdividing of shares in large enterprises with many owners

Providing Information

- A financial system provides price information that helps coordinate decentralized decision-making in various sectors of the economy

Providing Information

- Investors need current prices to evaluate their portfolios of quoted securities
- Quoted prices may be used to estimate the value of similar non-quoted securities
- Option prices may be used to determine the market's assessment of a stock's risk

Dealing with Incentive Problems

- A financial system provides ways to deal with the incentive problems that occur when one party to a financial transaction has information that the other party does not, or when one party is an agent and makes decisions for another

Dealing with Incentive Problems

- Asymmetric information:
  - Adverse selection
  - Moral hazard
- Agency problem