Principles of Finance

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2014

True or false:
TIn a world without information costs and transaction costs, $nancial intermediaries would not exist.U

Function of Financial Intermediaries: Indirect Finance

Deal with asymmetric information problems

- (before the transaction) Adverse Selection: try to avoid selecting the risky borrower.
  - Gather information about potential borrower.
- (after the transaction) Moral Hazard: ensure borrower will not engage in activities that will prevent him/her to repay the loan.
  - Sign a contract with restrictive covenants.

Conclusion:
Financial intermediaries allow TsmallU savers and borrowers to bene$t from the existence of $nancial markets.

Types of Financial Intermediaries

- Depository Institutions
- Contractual Savings Institutions
- Investment 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

How can the provision of several types of $nancial services by one $rm be both bene$cial and problematic?

Regulation of the Financial System

To increase the information available to investors:

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

Regulation of the Financial System

To ensure the soundness of $nancial 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 (in the US, mostly in the past):
  - Branching
  - Restrictions on Interest Rates

What is Money?

What is Money?

Money (or the Tmoney supplyU): anything that is generally accepted in payment for goods or services or in the repayment of debts.

Money (a stock concept) is diderent from:
Wealth: the total collection of pieces of property that serve to store value
Income: eow of earnings per unit of time (a eow concept)

The Dehnition and Functions of Money

- Money is a highly liquid $nancial asset that serves as a:
  - Medium of exchange
  - Unit of account
  - Store of wealth
  - Standard of deferred payment

Functions of Money: Medium of Exchange

- Eliminates the trouble of $nding 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
- A Unit of Account must
  - be be divisible
  - fungible
  - countable

Functions of Money:
Store of Value & Standard of Deferred Payment

- used to save purchasing power over time.
- other assets also serve this function
- A Store of Value must
  - be savable
  - be storable
  - retrievable
  - valuable upon retrieval
- A Standard of Deferred Payment must
  - be able to act as debt & credit
  - be (legal) tender

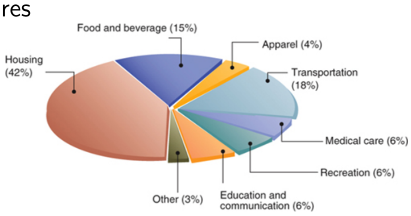
In Brazil, a country that underwent rapid ineation before 1994, many transactions were conducted in US Dollars rather than in Reals, the domestic currency. Why?

Ini ation

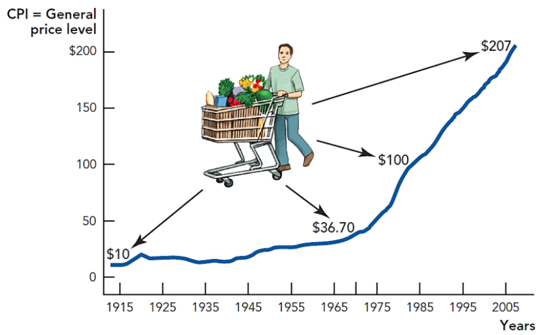
- **In ation** is a continual rise in the price level
  - is measured with price indexes
  - Expectations of in4ation can become built into individuals behavior and economic institutions and cause a small in4ation to accelerate
  - In4ation creates feelings of injustice and destroys the informational value of prices and the market
- **De ation** is a continual fall in the price level
- Ineation and deeation are measured with changes in price indexes
- **Price index** is a number that summarizes what happens to a weighted composite of prices of a selection of goods over time
- **Real price** is the price of a good that has been corrected for ineation.

Real World Price Indexes

- **Consumer price index (CPI)** measures the prices of a $xed basket of consumer goods, weighted according to each component s share of a average consumer s expenditures



- **Personal consumption expenditure (PCE) de ator** is a measure of prices of goods that consumers buy that allows yearly changes in the basket of goods that reeect actual consumer purchasing habits
- **Producer price index (PPI)** measures average change in the selling prices received by domestic producers



- 1982 price of gasoline was $1.25/gal.
- 2006 it was double that at $2.50/gal.
- CPI was 100 in 1982 and 202 in 2006.
- The real price of gasoline was about the same in 2006 as it was in 1982.

Hyperini ation: extremely high rates of ini ation

- Many governments have fallen into the trap of ineating their currency in order to pay debts.
- Hungary s hyperineation is the highest on record. What cost 1 Hungarian pengo in 1945 cost 1.3 septillion pengos at the end of 1946. Prices doubled every 15 hours!

Nation	Period	Cumulative Inflation Rate (%)	Maximum Inflation Rate on a Monthly Basis (%)
America	1777–1780	2,702	1,342
Bolivia	1984–1985	97,282	196
Peru	1987–1992	17,991,287	1,031
Yugoslavia	1993–1994	1.6×10^{9}	5×10^{15}
Nicaragua	1986–1991	1.2×10^{10}	261
Greece	1941–1944	1.60×10^{11}	8.5×10^{9}
Germany	1919–1923	0.5×10^{12}	3,250,000
Zimbabwe	2001–2008	8.53×10^{23}	7.96×10^{10}
Hungary	1945–1946	1.3×10^{24}	4.19×10^{16}

The Costs of Ini ation

If all prices (including wages) are going up, then why is ineation a problem?

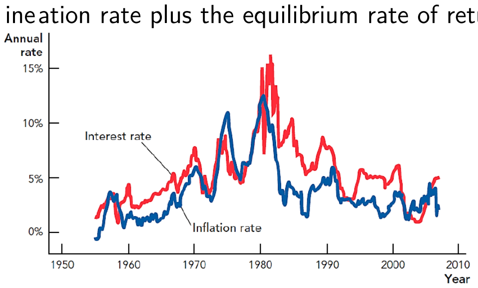
1. Ineation causes price confusion and money illusion.
   - Money Illusion: when people mistake changes in nominal prices for changes in real prices.
   - In4ation makes price signals more dig cult to interpret. A consumer may not know if the price of a product is increasing...
     - Because of increased demand? or
     - As a result of all prices going up with in4ation.
2. Ineation interacts with other taxes.
   - People pay taxes on illusory (nominal not real) capital gains.
   - Longer-run e5ect is to discourage investment in the flrst place.
3. Ineation is painful to stop.
   - Slowing down the money supply can create a recession.
4. Ineation redistributes wealth.

Ini ation redistributes wealth among the public

- The lender is now losing money on the loan.
- The borrower gains.

What happens if people expect ineation to go up?

- Lenders will increase nominal rates of interest.
- Fisher edect: the tendency for nominal interest rates to rise with expected ineation.
- The nominal rate of interest will be equal to expected ineation rate plus the equilibrium rate of return.



Ini ation is type of tax

- Ineation transfers wealth to the government that prints money to pay its bills.
- TMonetizing the debtU: when the government pays od its debts by printing money.
- Why don t they always ineate their debt away?
  - The Fisher e5ect: if banks know the government is doing this, they will simply raise interest rates.
  - Political cost: People who buy government bonds usually vote.

Expected and Unexpected Ini ation

- Expected and unexpected ineations adect behavior diderently
- **Expected in ation** is ineation people expect to occur
  - Rational expectations are the expectations that the economists models predict
  - Adaptive expectations are expectations based in some way on the past
  - Extrapolative expectations are expectations that a trend will continue

Expected and Unexpected Ini ation

- **Unexpected in ation** is ineation that surprises people
  - may redistribute income from lenders to borrowers
    - If lenders charge a nominal rate of 5% and expect in4ation to be 2%, the expected real rate is 3%
    - If in4ation is actually 4%, the real rate is only 1%
  - People who do not expect in4ation and who are tied to flxed nominal contracts will likely lose in an in4ationary period
- Expectations of ineation play an important role in any ongoing ineation
  - In4ationary expectations can accelerate large in4ation

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.

- 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

Distinguishing Between Money and Credit

- Credit cards are not money
- Credit card balances are assets of a bank in the form of a prearranged loan and liabilities of the credit card user
- Generally credit card holders carry less cash
- A debit card is part of the monetary system because it serves the same function as a checkbook

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 e8 cient than a payments system based on paper, several factors work against the disappearance of the paper system
- Still, the use of e-money will likely still increase in the future

Measures of Money

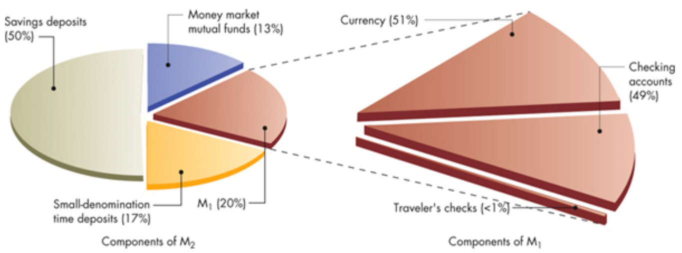
Why is simply counting currency an inadequate measure of money?

Measures of Money

- Economists have developed diderent measures of money

  M1 is a measure of the money supply; it consists of currency in the hands of the public plus traveler s checks, demand deposits, checking accounts, and other checkable deposits.

  M2 is a measure of the money supply; it consists of M1 plus other relatively liquid assets (small denomination time deposits, savings deposits and money market deposit accounts, money market mutual fund shares)



Measures of the Monetary Aggregates in the USA

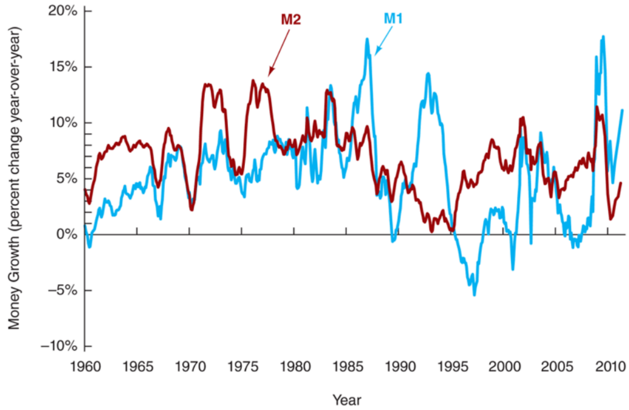
Measures of the Monetary Aggregates

	Value as of May 16, 2011 ($ billions)
M1 = Currency	958.8
+ Traveler's checks	4.6
+ Demand deposits	573.1
+ Other checkable deposits	399.0
Total M1	1,935.5
M2 = M1	
+ Small-denomination time deposits	848.3
+ Savings deposits and money market deposit accounts	5,530.4
+ Money market mutual fund shares (retail)	688.4
Total M2	9,002.6

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

Assume that you are interested in earning some return on idle balances you usually keep in your checking account and decide to buy some money market mutual funds shares by writing a check.
Comment on the edect of your action (with everything else the same) on M1 and M2.

Does it matter which measure is considered?

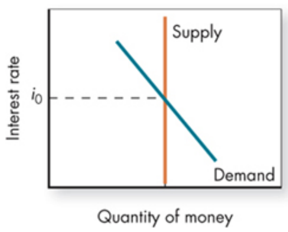


M1 and M2 can move in dierent directions in the short run
Conclusion: the choice of monetary aggregate is important for policymakers.

Why People Hold Money

The only reason people would be willing to hold money is if they get some bene$t from doing so

- The **transactions motive** is the need to hold money for spending
- The **precautionary motive** is holding money for unexpected expenses and impulse buying
- The **speculative motive** is holding cash to avoid holding $nancial assets whose prices are falling



- The demand for money is downward-sloping: as the interest rate falls the cost of holding money falls
- When interest rates rise, bonds & other $nancial assets become more attractive, so you hold more of these & less money

Where Are All the U.S. Dollars?

The more than $2,000 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?