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Lecture 9

Banking & The Monetary System

Economics & Society

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Previously in E&S…

- Definition of growth
  - exponential – catch-up – sustained growth
- History of growth
  - earlier societies – Malthusian cycles – Industrial Revolution
- Inequality and poverty
- The Solow growth model
  - production function – accumulation of capital – saving
- Causes of prosperity
  - climate, geography, culture, institutions, history and luck

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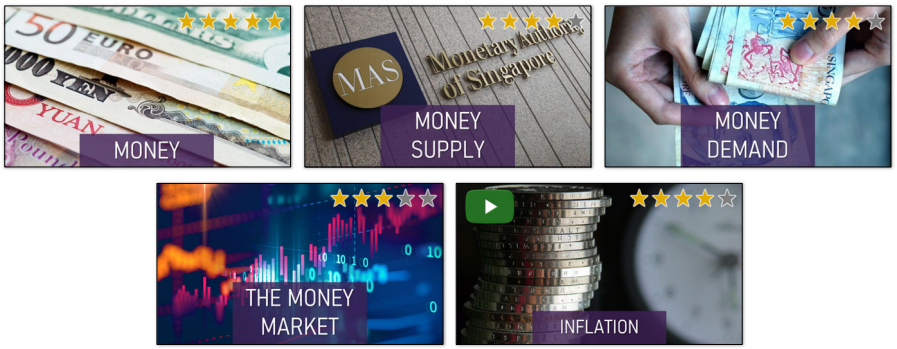
Banking & The Monetary System



Lecture 9

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Money

- Money is ***neither*** a ***good***, nor a ***service***
  thus, its total face value is ***not included in GDP***
- Money, however, sometimes is considered an ***asset***
  because it ***represents*** purchasing power
- Money is a technology that ***simplifies*** transactions by splitting them into 2 ***parts***:

- Thus, holding money is like an "***open account***" or a "***claim***" on real output
  only the first half of the transaction is ***completed;*** the other half is still ***pending***
- So, money can be interpreted as a form of ***debt***

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Roles & properties of money

- The ***3 roles*** of money:
  1. ***Medium of exchange***: an asset generally ***exchanged*** for goods and services
  2. ***Store of value:*** an asset used to ***transfer*** purchasing power into the future
  3. ***Unit of account***: a universal standard used to ***measure*** value, price or cost.
- ***Various forms*** of money have existed throughout ***history***
  metals, animals, sea-shells, cigarettes, phonecards, computing power
- ***Anything*** can be used as money as long as it has the following ***properties***:
  - To be ***generally accepted*** as an ***objective value carrier***
  - To be ***controllable in quantity*** (not in abundance – not easy to counterfeit)
  - To be ***portable*** and relatively ***durable***
  - To be non-destructively ***denominated***

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Fiat vs. commodity money

There are ***3 technologies*** of money:

1. Commodity money: carries ***intrinsic value*** due to its nature or the value of the material it is made of
2. Commodity-backed money: carries no intrinsic value on itself but ***legally represents a fixed quantity of something else*** of intrinsic value
   invented around the 11th century in China
3. Fiat money: neither carries nor represents a fixed intrinsic value but is used as ***legal tender by government*** decree:
   it is valuable only because everyone ***has agreed to accept it*** as money

- Today all economic systems have switched to using ***fiat money***

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The Banking System

- In every economy, the monetary system is ***run*** by a ***Central Bank (CB)***:
  - An ***administrative institution*** which serves as the ***monetary authority***
  - The CB operates ***completely autonomously*** from the government
  - The CB is the ***bank*** of ***commercial banks***.
- Commercial banks are ***profit maximizing firms***:
  - They accept deposits or CB money and provide credit
  - Banks act as a ***link*** between saving and investment (*)
  - Banks perform ***2 impossible functions***:
    - ***Maturity transformation***: borrowing short – lending long
    - ***Risk handling***: depositors consider their deposits 100% secure – loans are risky
  - ***Moral hazard*** is inherent in banking

The institutional roles of the CB

1. To ***monitor*** and ***regulate*** the banking system
2. To issue the ***cash*** in the economy
3. To keep ***inflation*** under control
4. To clear circular ***inter–bank payments***
5. To assist ***solvent*** banks if they become ***illiquid***:
   - A bank is ***solvent*** if its assets can cover its obligations
   - A bank becomes ***illiquid*** if its cash reserves cannot cover withdrawal requests.
6. To manage the ***exchange rates*** and foreign currency reserves

Banks create money!

- If a bank receives a ***deposit*** of $100:
  - The depositor can still use the $100 on her card
  - The bank can now ***loan out*** $100 to some other customer.
- In fact, the bank can loan out the $100 ***multiple times***

  because ***very few customers*** will need to ***withdraw*** bank credit in actual cash
- If a bank knows that ***only 10% of deposits*** are usually leaving the bank

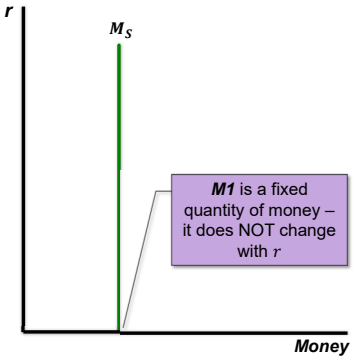
  it can ***leverage*** $100 of cash deposits to $1,000 worth of loans (bank credit)
- Money creation is an ***accounting process*** that does not generate ***real wealth***:
  - When a bank loans $100, it generates an asset (the expectation of $100 paid back)
  - Which is balanced with an $100 liability (the $100 credit in the customer's account)

The money supply

- There are ***2 main definitions*** of M_S:
  - ***M1*** = *Cash + checking accounts (debit)*
  - ***M2*** = *M1 + saving accounts + fixed deposits.*
- M1 is ***more liquid*** than M2

  money in saving accounts and fixed deposits cannot be spent unless it is first ***converted to M1***
- In our analysis, we will assume $\boldsymbol{M_S}$ ***is*** $\boldsymbol{M1}$
- Cash held by the Central Bank or commercial banks are ***NOT money***

  because it is ***not in circulation***



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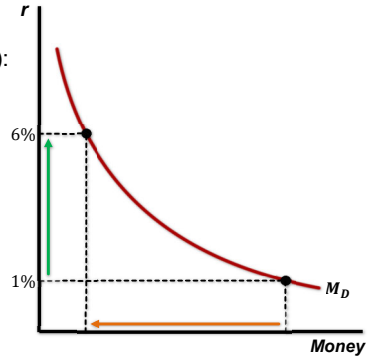
Money demand

- ***Demand for money*** (M_D) is the amount of wealth individuals want to hold in money instead of other interest-bearing assets (IBAs):
  - For transactions
  - For precaution
  - For speculation.
- Money demand is ***negatively related*** to r:
  - When r is low, individuals prefer to hold ***more*** of their wealth in money for ***convenience***
  - If r increases, they would rather buy ***IBAs*** to take advantage of the ***high interest***.



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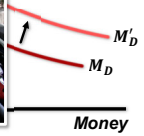
Money demand shifters

- ***M_D*** will shift
  money ind
  - If ***real GD***
    more mo
  - If ***prices***
  - If ***public***
    rise…



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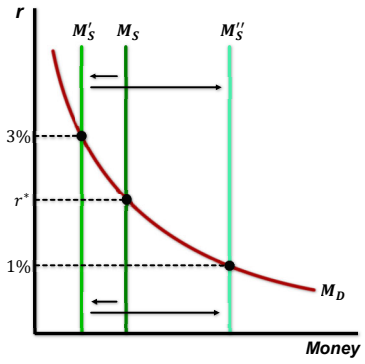
The money market

- The equilibrium interest rate r^*occurs at the ***intersection*** of M_D and M_S
- However, the CB can ***define*** r^* by affecting how much ***credit*** banks will provide
- If the CB wishes banks to loan with $r = 3\%$:
  - Will offer banks to deposit their reserves to the CB for say 2.5%
  - Banks will loan to their clients for at least 3%.
- If the CB wishes $r = 1\%$
  - Will offer to banks rate 0.5%
  - Banks will loan to clients for at least 1%.



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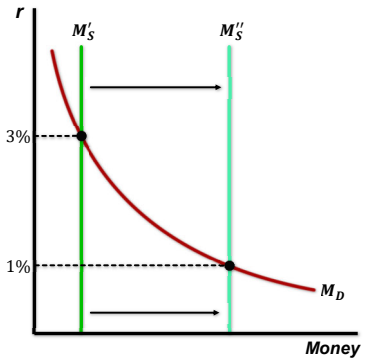
How will the M_S expand?

- If banks have ***ample reserves***, they will use them to provide ***loans*** until $M_S' \rightarrow M_S''$
- If bank reserves are insufficient (***scarce reserves***) the CB must ***infuse*** more reserves into the banking system:
  - The CB can offer to ***purchase government securities*** from the banks offering cash that banks can leverage to new credit
  - Conversely, the CB can ***reduce bank reserves*** by offering to sell securities to banks in exchange for their reserves
- Such actions are known as ***OMOs*** or ***QE***



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Is over-loaning possible?

- ***What stops*** banks from loaning out more than what the CB wants, creating ***inflation***?
  1. Banks' reserves are ***limited*** by the bank's assets
  2. Demand for bank credit is ***not infinite***

     loans are ***not free;*** clients will not borrow more than what they can ***afford***
  3. Irresponsible lending is ***not profit-maximizing*** for banks

     banks have ***capital requirements***, so bankers also risk some of their ***own money***
- ***NOT*** the reserve ratio ***(!)***

  today the banking system has sufficient reserves to cover ***all sensible loans***

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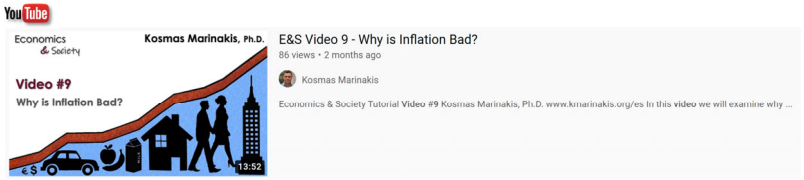
Internal video

In this video I explain why inflation is bad. There are several different reasons that come from all sides of economics: distortion of the income distribution, worsening of the economic environment, distortion of credit relations, distortion of competition, inefficiencies from anti-inflationary policies and more.



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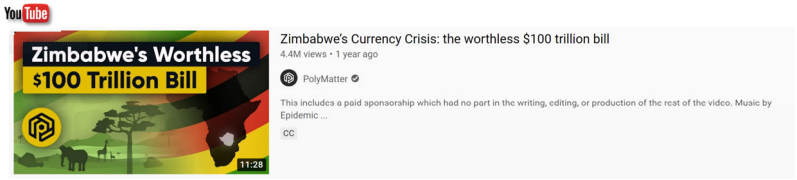
External video

Watch how hyperinflation has recently caused a major societal crisis in Zimbabwe and what are the consequences in the economy when money loses its value almost entirely.



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Thank you!

(you are welcomed to stay for *consultation* or *discussion*)

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WARNING!

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