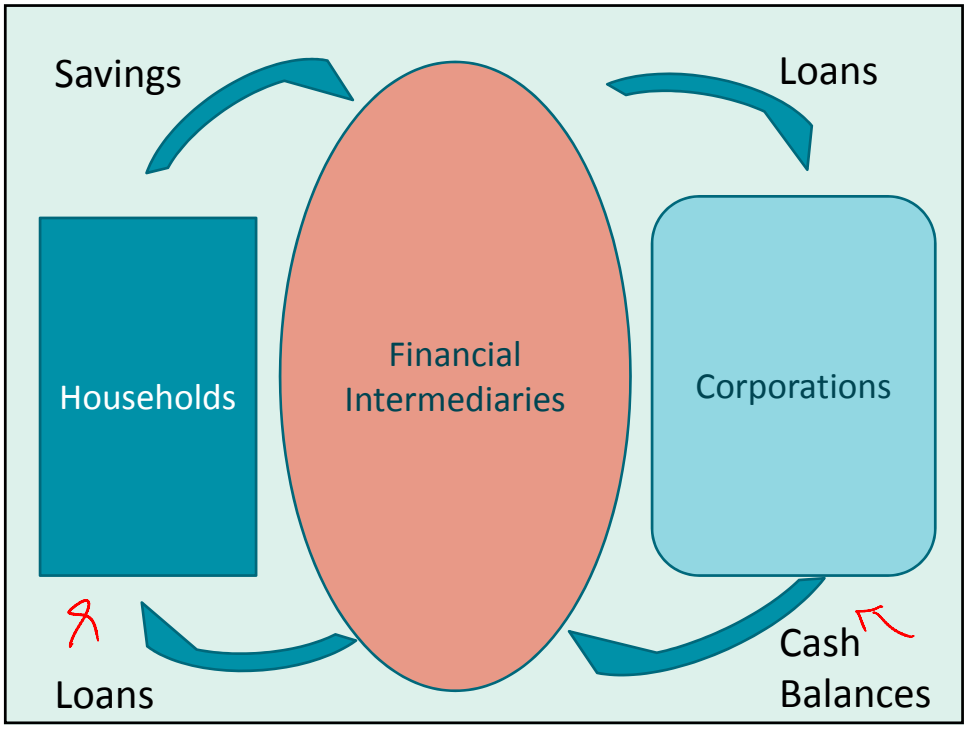
Introduction

What Does the Financial Sector Do?

The financial sector intermediates and facilitates the resources flowing across economic sectors.

The financial sector serves as a bridge between sectors which have a surplus of financial resources and can lend and sectors which have a deficit of financial resources and need to borrow.



Introduction

What Does the Financial Sector Do?

It creates saving vehicles that allow for the inter-temporal allocation of consumption.

It creates credit instruments that allow for the allocation of savings to investment.

It creates products that mitigate financial risk and therefore allow a stable income flow.

Introduction

Monetary and Financial Sector Statistics

Statistics are collected on the basis of the economic objectives, functions and behavior.

The Financial Sector is the sector of the domestic economy which intermediates financial resources.

The 2001 Monetary and Financial Statistic Manual is the main reference for compilation.

Introduction

Why are Monetary and Financial Sector Accounts Important?

Financial flows mirror the flows of real resources in an economy.

Monetary statistics are generally reliable and available with little delay.

Introduction

Why are Monetary and Financial Sector Accounts Important?

The links between the monetary sector and other macroeconomic sectors play a central role in monetary policy design.

OUTLINE

1. **Monetary and Financial Sector Statistics**
   - Financial Sector Overview
   - Central Bank
   - Other Depository Corporations
   - Depository Corporations Survey
2. **Monetary Analysis**
   - Money Multiplier
   - The Demand for Money
   - Selected Issues

OBJECTIVES

Identify the main institutions composing the financial corporations sector.

Understand the main items in the balance sheets of the depository corporations sector and the consolidation process.

Analyze how money is created and calculate the growth in the money supply.

Identify the main determinants of the demand for money.

The Financial Sector

May collect deposits

Depository Corporations Sector

broad set

Other Financial Corporations

insurance pension funds etc

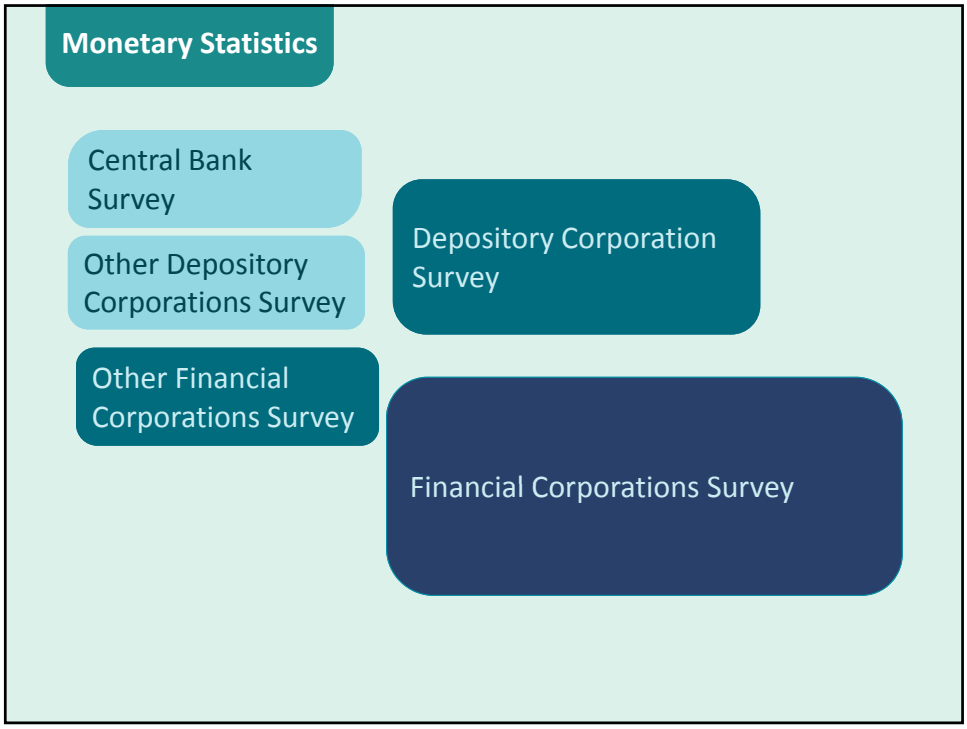
The Financial Sector

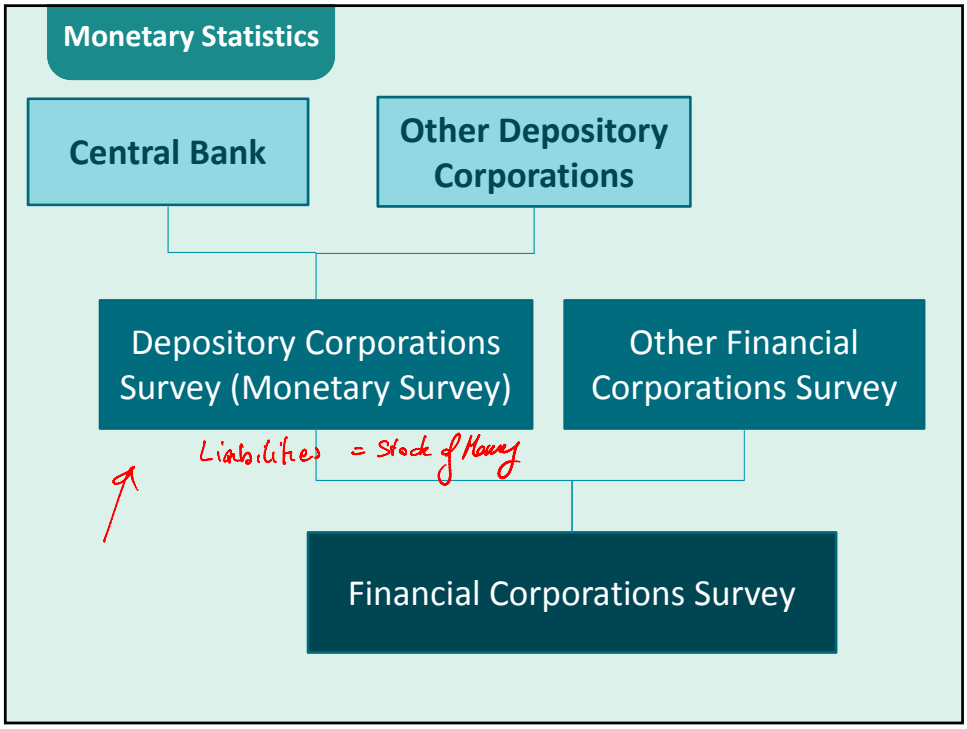
The Depository Corporations Sector

- Central Bank
- Commercial Banks, Credit Unions, Savings and Loans etc
- Money Market Funds

Other Financial Corporations

- Insurance companies
- Pension funds
- Mutual funds
- Leasing companies and others


Monetary Statistics
Central Bank Survey
Other Depository Corporations Survey
Other Financial Corporations Survey
Depository Corporation Survey
Financial Corporations Survey


Monetary Statistics
Central Bank
Other Depository Corporations
Depository Corporations Survey (Monetary Survey)
Other Financial Corporations Survey
Liabilities = Stock of Money
Financial Corporations Survey

Presentation of the Accounts

- Each account refers to one component of the financial sector.
  - It shows the ***stock*** of assets or liabilities with respect to all other sectors of the economy
  - For monetary analysis the flow of assets and liabilities is also important.

Presentation of the Accounts

The accounts are valued at fair value at the end of the reference period.

All entries will be in national currency (or foreign currency in those countries where this is used as a national currency unit).

Presentation of the Accounts

- Each account presents gross assets and gross liabilities:
  - by residency
  - by sector of economic counterparty
  - by type
  - by maturity
- Some items are presented on a net basis
  - so that negative entry for a net asset is interpreted as a net liability

Analytical presentation => relevant for monetary policy analysis

RECAP

- Financial Sector Intermediaries
- Deposit Taking Institutions → present Broad Money aggregates
- Non-deposit Taking institutions
- Structure of the accounts

Central Bank

Functions

1. Serves as lender of last resort to the system
   Issues currency

LOLR

Central Bank

- Role of a Lender of Last Resort :
  - Illiquid nature of the credit system
    - The liabilities of banks, such as deposits, typically have very short maturities,
    - The loans, that comprise the assets have much longer term.
  - Failing depositor confidence on one bank may lead depositors in all other banks to rush to claim their savings.

↳ Banking system illiquid

Central Bank

- Role of a Lender of Last Resort :
  - Prevent that a confidence crisis in one element spills over to the rest of the sector.
    - To prevent financial collapse, the central bank can:
      - Lend to the problem bank and guarantee payment to its depositors,

Central Bank

Functions

1. Serves as lender of last resort to the system
2. Issues currency

Central Bank

- Role of the Issuer of the currency
  - Creating the monetary base (also called base money or high-powered money)
    - The monetary base comprises the central bank liabilities towards the rest of the system.
    - Through the monetary base the central banks controls the supply of money in the economy.

Central Bank

The central bank creates monetary base whenever it purchases assets.

- By making a payment it writes a check against itself.

Central Bank

one accounting unit

currency board

government agencies that perform central banking activities

Functions

1. Serves as lender of last resort to the system
2. Issues currency
3. Conducts monetary policy
4. Holds the country's foreign reserves
5. Acts as banker to government
6. Oversees the financial sector

Central Bank

ASSETS

Net Foreign Assets (NFA)

Net Domestic Assets (NDA)

- Net domestic credit (NDC)
  - Net claims on government (NCG)
  - Claims on ODCs (CODCs)
  - Claims on other domestic economic sectors (COSE)
- Other items, net (OIN)

LIABILITIES

Monetary Base (MB)

- Currency Issued
  - Held by public
  - Held in ODC
- Liabilities to ODCs
- Liabilities to the Rest of the economy included in Broad Money

Central Bank Liabilities

- Deposits of Other Depository Corporations
  - Each licensed bank has an account at the central bank where it holds reserves, and where credits from the central bank are deposited.
  - Reserves can be either required, or held on a voluntary basis (excess reserves).

Central Bank

Balance Sheet Accounting Identity

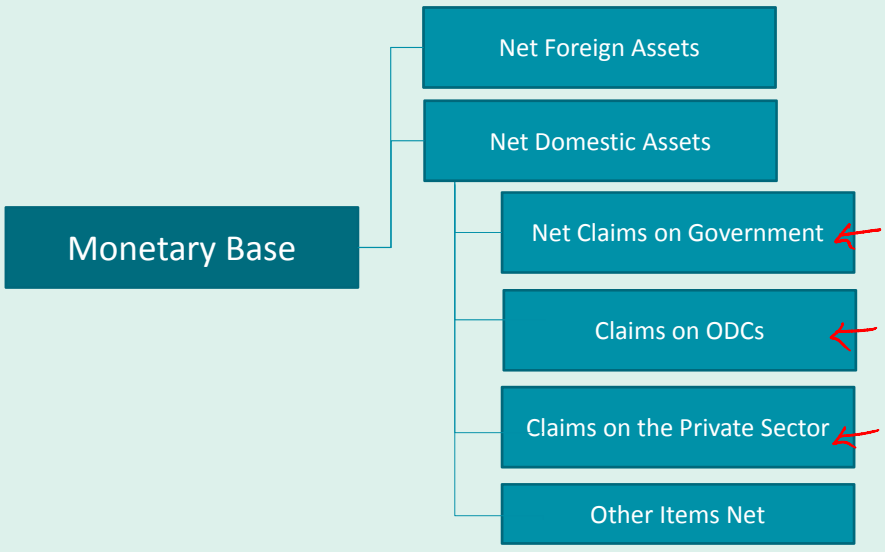
Stocks

$$MB^* = NFA^* + NDA^*$$

Flows

$$\Delta MB^* = \Delta NFA^* + \Delta NDA^*$$

Sources of Base Money Creation



Sources of Base Money Creation

- Open Market Operations
  - purchase of securities
    - issued by the government
    - Issued by the central bank
- Financing of the government's deficit
  - Purchases of securities
  - Loans
- Purchases of foreign exchange

≠ Net position of the government vis-à-vis the central bank

↳ NFA

Sources of Base Money Creation

- Lending to the Domestic Banking Sector
  - Discount window
    - Discount rate

↑ ⇒ tighten monetary condition

➡ The discount mechanism is an instrument of **monetary control**

Sources of Base Money Creation

Sterilization: ≈ offsetting operation

- The purchase of an asset (e.g., government securities, foreign exchange) is offset by the selling of another asset
- There is no impact on the monetary base, and hence on overall liquidity conditions in the economy

Central Bank: Balance Sheet

Example (1): open market purchase of 100 of government bonds (from banks)

Assets		Liabilities	
Net Foreign Assets	…	**Monetary Base(MB)**	**+100**
Net Domestic Assets	**+100**	Currency issued	…
Net claims on the gov.	+100	Held in banks	…
Claims on ODCs	…	Held outside banks	…
Claims on other res. sector	…	Deposits of ODCs	+100
Other items net	…	Other deposits	…

Central Bank: Balance Sheet

Example (2):purchase of 70 of foreign currency from banks (un-sterilized purchase)

Assets		Liabilities	
Net Foreign Assets	**+70**	**Monetary Base (MB)**	**+70**
Net Domestic Assets	**…**	Currency issued	…
Net claims on the gov.	…	Held in banks	…
Claims on ODCs	…	Held outside banks	…
Claims on other res. sector	…	Deposits of ODCs	+70
Other items net	…	Other deposits	…

Central Bank: Balance Sheet

Example (3): purchase of 70 of foreign currency from banks, and concurrent sale of government bonds to banks (sterilized)

Assets		Liabilities	
Net Foreign Assets	**+70**	**Monetary Base(MB)**	**+70** **-70**
Net Domestic Assets	**-70**	Currency issued	…
Net claims on the gov.	-70	Held in banks vaults	…
Claims on ODC	…	Held outside banks	…
Claims on other res. sector	…	Deposits of ODC	+70 -70
Other items net	…	Other deposits	…

Central Bank: Analysis

RECAP

Summary

- Role of the central bank
- Monetary Base
- Balance Sheet Identity
- Sterilization

Other Depository Corporations

The ODCs include:

- Commercial banks.
- merchant banks.
- savings and loans institutions .
- cooperative banks.

banking sector

Etc..

Other Depository Corporations

Functions:

- Collect savings from the population for safekeeping.
- Provide financial resources for investment purposes.
- Transform short term deposits into longer maturity loans.

Other Depository Corporations

- Influence liquidity in the economy through their decisions on deposit taking and lending.
- Constitute the channel for the transmission of monetary policy to the economy.

Other Depository Corporations Survey

ASSETS

Net Foreign Assets (ONFA)

Domestic Credits

- Net claims on government
- Claims on other domestic economic sectors

Reserves

- Required
- Excess

Other items, net

LIABILITIES

Deposits

- Demand
- Time and savings
- Foreign currency

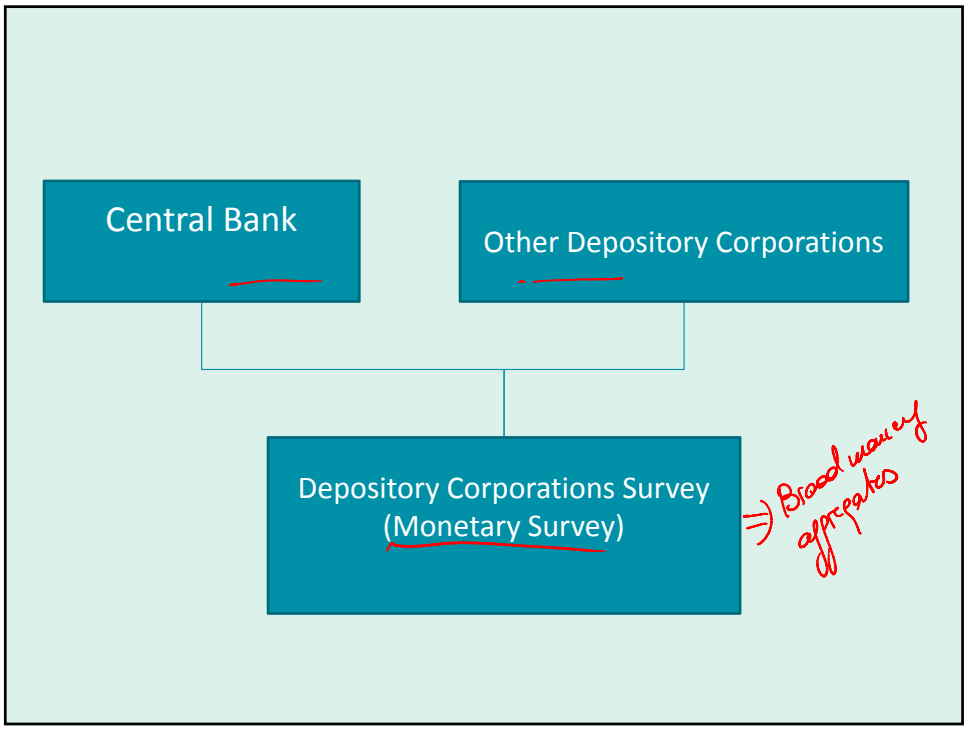
Liabilities to Central Bank

Other less liquid liabilities

RECAP

- Functions of the ODCs:
  - Collect Deposits
  - Extend Loans
- Structure of the Accounts


1.4 Depository Corporations Survey


Central Bank
Other Depository Corporations
Depository Corporations Survey
(Monetary Survey)
⇒ Broad money aggregates

Monetary Statistics: Depository Corporation Survey

- Represents the consolidated balance sheet of the entire banking system netting out the positions between entities of the banking system.
- It presents the evolution of the stock of broad money and credit developments of the banking system towards the rest of the economy.
- It allows policymakers to adjust monetary policy, if necessary.

Consolidation

Central Bank	
Assets	Liabilities
NFA	Base money (MB)
NDA	Currency issued
Net claims on the government	Held in ODCs
	Held by the public
Claims on ODCs	
Claims on other resident sector	Deposits of ODCs
Other items net	Other deposits

ODC	
Assets	Liabilities
NFA	**Deposits**
NDA	Demand deposits
Claims on the central bank	Time and saving deposits
Currency held in vaults	Foreign currency deposits
Deposits at the central bank	Liabilities to the central bank
Domestic credit	
Other items net	

Consolidated

Depository Corporations Survey	
Assets	Liabilities
NFA	**Broad Money**
NFA of the CB	Currency issued
NDA	
Net claims on the government by the CB	Held by the public
Claims on the other resident sector by the CB	
Other Items net	Other deposits at CB
NFA of the ODCs	
NDA	
	Deposits
Claims on the government by the ODCs	Demand deposits
	Time and saving deposits
Claims on rest of the economy by the ODCs	Foreign currency deposits
Domestic Credit	
Other Items Net	

Depository Corporations Survey

- Consolidates the claims of the DC sector on residents (NDA).
- Consolidates the claims of the DC sector on non-residents (NFA).
- Consolidates the liabilities of the DC sector that constitute broad money (M2):
  - The sum of currency in circulation and transferable deposits will constitute M2, the money supply.

Depository Corporations Survey

ASSETS

Net Foreign Assets (NFA)

Net domestic assets (NDA)

- Domestic credit (DC)
  - Net credit to government (NCG)
  - Claims on Resident Sector (CORS)
- Other items, net (OIN)

LIABILITIES

Broad money (M2)

- Currency in circulation
- Transferable Deposits
  - Demand deposits
  - Time and savings deposits
  - Money Market Funds Deposits
  - Foreign currency deposits
- Other Deposits
- Securities other than shares
  - Certificates of Deposits

Monetary Aggregates

- There are different definitions of the stock of money in an economy.
- The most commonly used are referred to as M1 and M2, or narrow money and broad money.
- M1 and M2 are the aggregates central banks most frequently monitor for purposes of monetary policy decisions.

Monetary Aggregates

- M1, or Narrow Money is defined as the sum of:
  - Currency in circulation (C)
  - Demand deposits (D)
- M2, or Broad Money, also includes:
  - Time and savings deposits (T)
  - Money Market Funds (MMF)
  - Foreign Currency Deposits (FC)
    - These are usually referred to as: Quasi-money (QM)
- So that: M2 = M1 + QM

Depository Corporations Survey

Balance Sheet Accounting Identity

Stocks

$$M2 = NFA + NDA$$

$$M2 = NFA + NCG + CORS + OIN$$

Flows

$$\Delta M2 = \Delta NFA + \Delta NDA$$

$$\Delta M2 = \Delta NFA + \Delta NCG + \Delta CORS + OIN$$

Links to Other Sectors

- M2:
  - Net Foreign Assets (NFA)
  - Net Domestic Assets (NDA)
    - Net credit to general government (NCG)
    - Credit to other domestic economic sectors (CPS)
    - Other Items, Net (OIN)

Linked to BOP

$\Delta NFA = RES = CAB^* + KAB^* - FAB^* + NEO$

Linked to Fiscal Sector

ΔNCG = Domestic bank financing of fiscal deficit

Linked to Real Sector

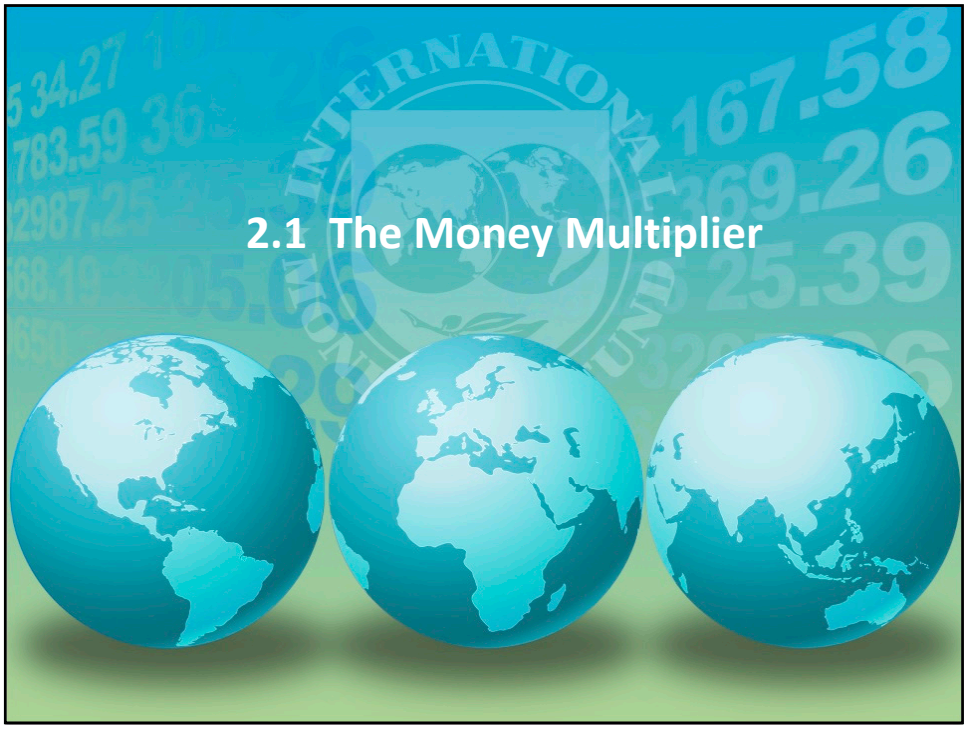
ΔCPS related to growth of:
GDP,
private consumption,
private investment, etc

RECAP

- Consolidating DC Balance Sheets → DCS
- Broad Money
- Other sectors' financing flows reflect in DCS

Slide 55

p1 Consider inserting at beginning of next section
pdudine, 7/24/2013



Deposits and Reserves

- The private sector will deposit a certain amount of its earnings in commercial banks for safekeeping and saving.
- The commercial banks can use part of the amounts they receive in the form of deposits to extend loans or purchase assets.

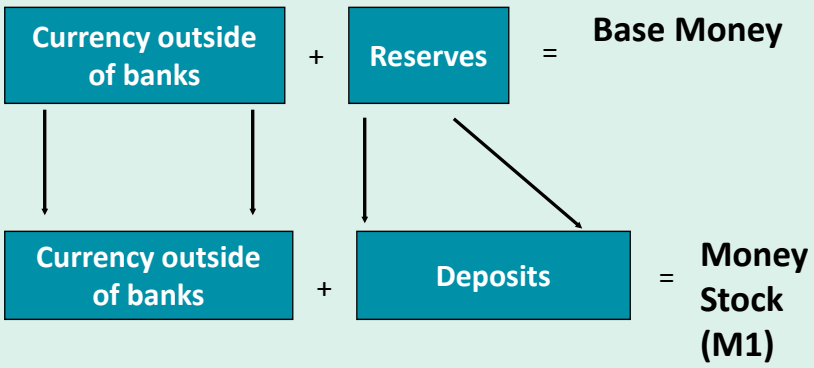
Monetary Expansion

- Money gets created when:
  - Commercial banks do not hold all of their deposits as reserves, but extend loans to the private sector.
  - The private sector will re-deposit its currency holdings into the commercial banks.
- This process increases the amount of money in circulation in the economy.

The Role of Reserves

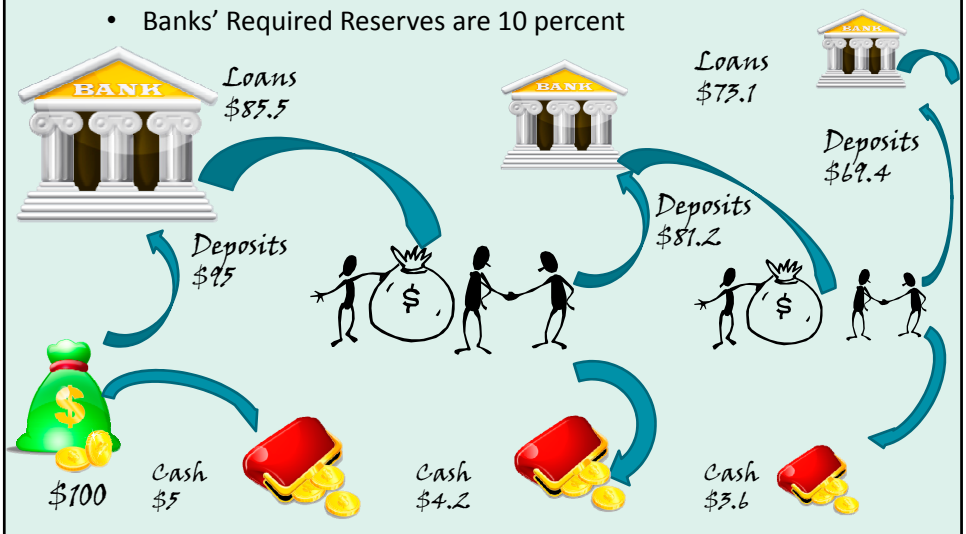
- Banks have to keep liquid **reserves** to meet withdrawal demands of their customers.
- The central bank typically requires that a fraction of the reserves be deposited at the central bank:
  - These are known as **Required Reserves**
    - under the Fractional Reserve System
- The reserves that banks keep in excess of requirements are known as **Excess Reserves**

Money Supply and the Multiplier



Money Multiplier

- The central bank increases currency in circulation by 100
- Depositors preference for liquidity is 5 percent
- Banks' Required Reserves are 10 percent



Money Multiplier

- We assume depositors do not keep cash. They deposit everything they have
- Assume banks only hold the reserves that are required. They lend as much as possible
- Central Bank buys $100 of government bonds through an open market operation (OMO). Monetary base grows $100
- Since reserve requirement (*rr*) is 10%, the total amount of money (M1) will end up growing by $1000 and reserves by $100

Money Creation by Banks

Money Creation:

Central Bank buys from Bank A $100 of government bonds through OMO→ΔBase: $100

Bank A	ΔDeposits	ΔCredit	ΔReserves
1	0.0	100.0	0.0
2	100.0	90.0	10.0
3	90.0	81.0	9.0
4	81.0	72.9	8.1
5	72.9	65,6	7.3
6	65.6	59.0	6.6
7	59.0	53.1	5.91
…	…	…	…

Money Creation by Banks

Money Creation:

Central Bank buys from Bank A $100 of government bonds through OMO→ΔBase: $100

Bank A	ΔDeposits	ΔCredit	ΔReserves
1	0.0	100.0	0.0
2	100.0	90.0	10.0
3	90.0	81.0	9.0
4	81.0	72.9	8.1
5	72.9	65,6	7.3
6	65.6	59.0	6.6
7	59.0	53.1	5.91
...	...	...	...

$$\Delta M1 = \Delta MB\left[1 + (1-rr) + (1-rr)^2 + (1-rr)^3 + \ldots\right] = \frac{1}{rr}\Delta MB = 1000.0$$

The Money Multiplier

$$MB = C + R \qquad M1 = C + D$$

$$M1 = m\,m\,MB = m\,m\,(C + R)$$

$$\frac{M1}{MB} = mm = \frac{C + D}{C + R} = \frac{\frac{C}{D} + \frac{D}{D}}{\frac{C}{D} + \frac{R}{D}} = \frac{c + 1}{c + r}$$

Where:

$$c = \frac{C}{D} \qquad r = \frac{R}{D}$$

The Money Multiplier

- Assume *r* is 15 percent and *c* is 5 percent
- The M1 money multiplier will be: $\frac{c+1}{c+r}$
- Therefore mm= 5.25
- Therefore if MB increases by 100 the stock of money M1 would be expected to increase by 525

The Money Multiplier

- To extend this calculations to M2 it is important to keep in mind that M2 = C + D + TD + MMF according to the definition we discussed above.
- Therefore the multiplier for M2 will include the public's preference for having Time and Savings Deposits (*t*) and money market funds (*mmf*) as well as the preference for holding currency c.
- It is possible to show that: $mm_2 = \frac{1+c+t+mmf}{r+c}$

The Money Multiplier

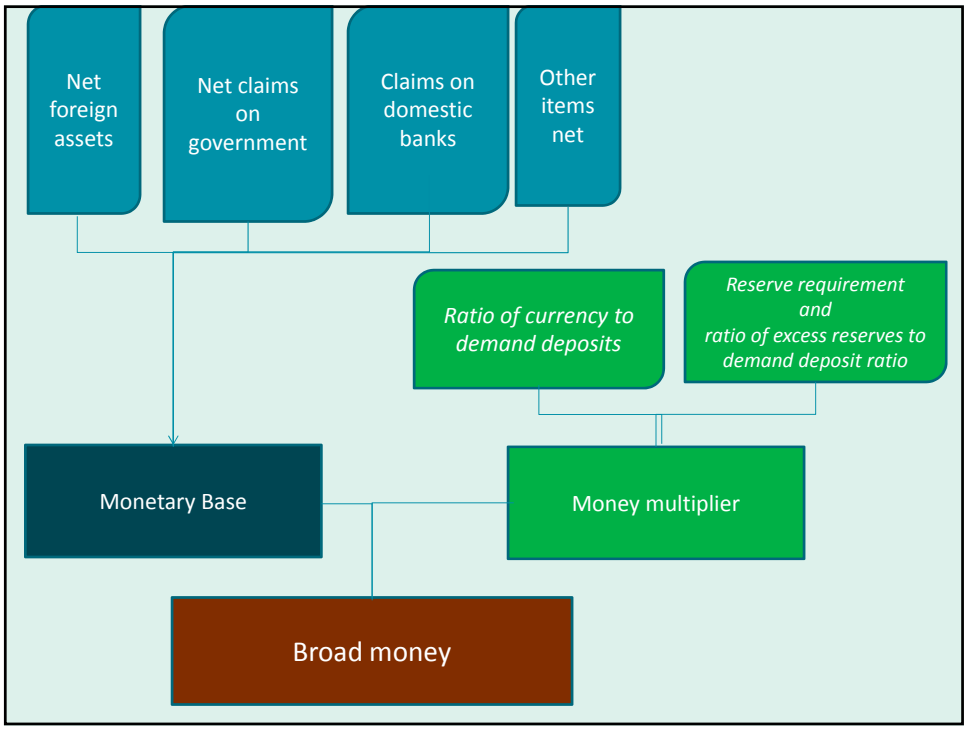
- The multiplier depends on:
  - Reserve Requirements decided by the central bank
  - The banks' opportunity cost of holding Excess Reserves
    - liquidity risks vis-à-vis interest rates on assets
  - The private sector opportunity cost of holding cash instead of deposits
    - liquidity risks vis-à-vis interest rates on assets

Changing the Money Stock

- The central bank can mop up liquidity from the economy:
  - by selling assets to banks
    - Open Market Operations
  - by increasing reserve requirements
  - by reducing lending to banks

Changing the Money Stock

- The central bank can inject liquidity in the economy:
  - by purchasing assets from the banks
    - Open Market Operations
  - by lowering reserve requirements
  - by increasing lending to banks



Money Demand

Why do people hold money?

Money Demand

Functions of Money:

- Medium of exchange — amount of goods traded
- A unit of account — Prices
- Store of value ⇒ interest rate.

Money Demand

$$M_d = f(Y, P, r)$$ ← interest rate

$$\frac{\partial M_d}{\partial Y} > 0 \qquad \frac{\partial M_d}{\partial P} > 0 \qquad \frac{\partial M_d}{\partial r} < 0$$

Money Demand

$Md = f(Y, P, r)$ ⇒ currency units

$\frac{Md}{P} = f(y, r)$ = goods and services money can buy

$md = f(y, r)$

Money Demand

$$M_D = f(Y, P, i)$$

Money Demand

$$M_D = k\,PY$$

$$\frac{M_D}{P} = kY \Rightarrow k = \frac{M}{P \cdot Y}$$

proportionality factor

The Quantity Theory of Money

$$M_D = k \cdot PY$$

And thus $$k = \frac{M}{P \cdot Y}$$

As long as *k* is constant, there is a proportional relationship between *M* and *P*

The Quantity Theory of Money

$$V = \frac{1}{k}$$

$$M \cdot V = P \cdot Y$$

V = the income velocity of money

The Quantity Theory of Money

We call:

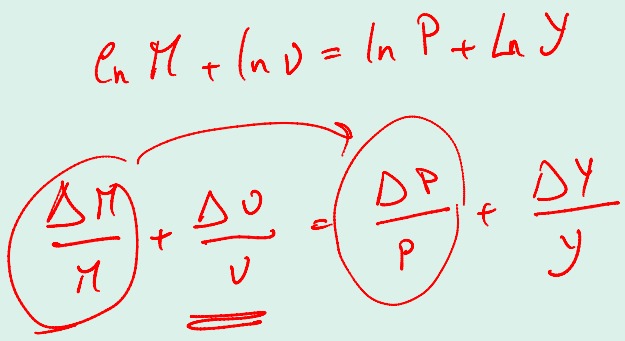
$$v = \frac{1}{k}$$

Such that:

$$M \cdot v = P \cdot Y$$

v= income velocity of money

The Quantity Theory of Money



The Quantity Theory of Money

Taking logarithmic values:

$$\ln M + \ln v = \ln P + \ln Y$$

Taking derivatives:

$$\frac{\Delta M}{M} + \frac{\Delta v}{v} = \frac{\Delta P}{P} + \frac{\Delta Y}{Y}$$

$$\frac{\Delta v}{v} = 0 \rightarrow \quad \frac{\Delta M}{M} = \frac{\Delta P}{P} + \frac{\Delta Y}{Y}$$

The Quantity Theory of Money

- *Velocity* is one of the most studied variables in monetary economics.
- If *V can be predicted with confidence*

➡ *then there will be* a level of the money supply that is consistent with the attainment of the desired real growth rate and inflation rate.

The Quantity Theory of Money

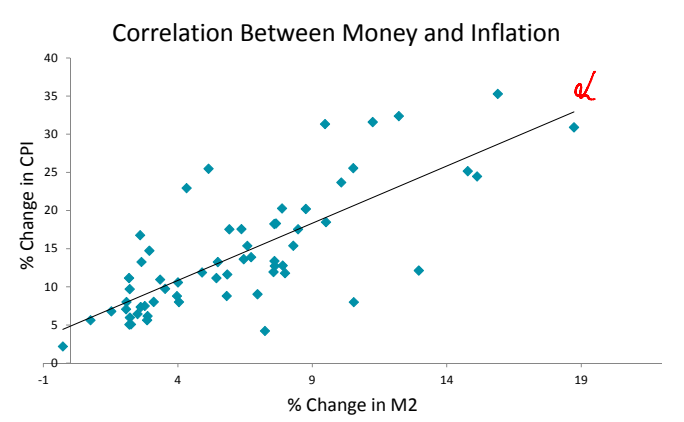
- *Velocity is not a* mechanical link between nominal income and the stock of money

➡ velocity and money demand are inversely related.

Money and Inflation

- What does the quantity theory of money predict?
- That an undesired increase in the stock of money will lead to higher inflation in the economy.
- Is this in the data?

Money and Inflation



Source: IFS, Fund staff estimates and calculations. Data are average growth rate in M2 and average inflation rate from 2000 to 2012. Angola has been excluded. Sample includes all IMF member countries for which both data points were available

Credit Growth

- The quantity theory of money suggests that:
  - If the central bank controls the stock of money in the economy, it will control inflation.
  - Inflation will be controlled by limiting growth in Net Domestic Assets or in Net Foreign Assets.
  - If the central bank controls the growth of the monetary base it will control the growth of credit to the private sector.

The Quantity Theory of Money

Is velocity really constant?

The Income Velocity of Money

- We would expect money velocity to increase if:
  - Expected inflation increases
  - The opportunity cost of holding money increases
- We would expect money velocity to decrease if:
  - The degree of monetization increases
  - Electronic money develops – convert across different instruments
  - Capital flows are liberalized

The Income Velocity of Money

- We would expect money velocity to increase if:
  - Expected inflation increases
  - The opportunity cost of holding money increases
- We would expect money velocity to decrease if:
  - The degree of monetization increases
  - Electronic money develops → demand M_1 ↓, v_{M_1} ↑; demand M_2 ↑, v_{M_2} ↓
  - Capital flows are liberalized

v ↑ ↓

The Risk of Getting Velocity Wrong

- If the central bank underestimates velocity
  - The excess supply of money will lead to higher inflation and/or depletion of foreign exchange reserves
- If the central bank overestimates velocity
  - The tighter stance of monetary policy will lead to lower output growth

Monetary Frameworks

What are central banks actually doing in implementing monetary and exchange rage policy?

- Four Viable Alternative Monetary and Exchange Rate Regimes
  1. Monetary aggregates targeting
  2. Exchange rate targeting
  3. Inflation targeting
  4. Other "eclectic" frameworks

Monetary Frameworks

Monetary Aggregates Targeting

- The money stock can become a nominal anchor if velocity is stable.
- Central banks have sought to achieve the desired M2 by targeting the monetary base and hoping the multipliers are stable.

$M_d = \nu PY = M_s \Rightarrow M = mm\,MB$ ← OMO

propensity to save reserves

$MB = NDA + NFA$

Monetary Frameworks

- Since M2 = NFA+NDA
  - the central bank policy will sterilize any unexpected increase in NFA or NDA.
- Examples:
  - Industrial countries (the late-1970s to mid-1980s)
  - About 30 emerging market countries today (you can find the full list in the current issue of the IMF's AREAER)

Monetary Frameworks

- *Exchange Rate Targeting* frameworks use the ***exchange rate*** as a nominal anchor to stabilize inflation.
  - The central bank commits to buy or sell any amount of foreign exchange reserves at a targeted exchange rate.
  - EG. Saudi Arabia, Denmark.

OMOs

$MB = NDA + NFA$

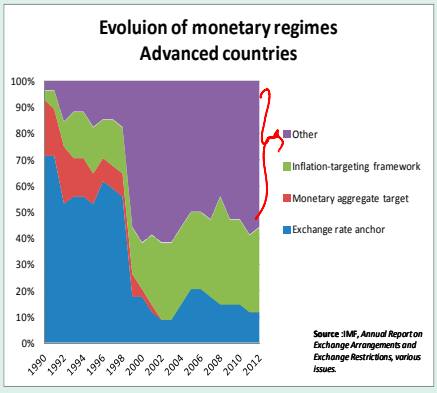
Monetary Frameworks

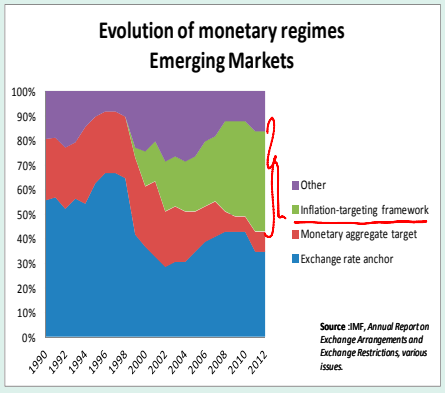
- *Inflation Targeting* regimes use ***inflation expectations*** for a nominal anchor
  - The central bank targets an interest rate level that keeps the central bank's *forecast* of inflation in line with a pre-announced inflation target
- Examples:
  - New Zealand, Chile, U.K., Czech Republic, Poland, Romania, Thailand, Brazil, Ghana

Monetary Frameworks

- Eclectic Monetary Frameworks
  - Adjust monetary policy instruments to pursue stable economic growth and low inflation, but with no formally pre-announced targets
  - Examples:
    - U.S., Euro Area, Japan, India, ...

Evolution of Monetary Frameworks





RECAP

- The Demand for Money
- The Quantity Theory of Money
- Stability of the Income Velocity of Money

Selected Issues

- Seigniorage.
- Foreign Capital Inflows.
- Financial Sector Vulnerabilities.

Selected Issues

- Seigniorage.

Seigniorage

- Rent to the central bank accruing from the privilege of being the sole issuer of currency.
- The value of the printed currency is lower than the value of the central banks assets.
- Important implications for monetary policy.

Seigniorage

- If money demand grows in the same proportion as real GDP .
  - ⇨The central bank can increase the monetary base in the same proportion without generating inflation
- This is the seigniorage to the central bank.

Inflation Tax

- The other component of seigniorage is the inflation tax.
- The reduction of the value of the real value of the monetary base constitutes a revenue for the central bank (or the government).

Inflation Tax

- If the monetary base is 19.25 percent of GDP, a 10% inflation rate will reduce liabilities in real terms 1.9 percent of GDP.
- If the velocity of money has not changed the central bank can now issue 1.9 percent of GDP in base money.
  - This is the inflation tax collected by the central bank.

Selected Issues

Seigniorage.

Foreign Capital Inflows.

Monetary Policy and Capital Inflows

- Capital account liberalization strengthens the link between domestic and foreign economic policies
- Difference between interest rates will generate a re-allocation of capital across countries.

  ➡ The tightening of the monetary policy stance in a country will induce capital inflows.

Monetary Policy and Capital Inflows

- If countries pursue a fixed exchange rate regime:
  - The monetary expansion will occur as the central bank seeks to avoid an appreciation of the domestic currency.
  - The monetary expansion will push interest rates back down.
- If countries let their exchange rate float freely:
  - The domestic currency will appreciate vis-à-vis other currencies.

Responses to Capital Inflows

combination of actions

- Accumulate reserves by buying part of the capital that is flowing into the country, thereby allowing also some appreciation of the exchange rate.
- Sterilize to offset part of the impact on the monetary base of the increased net foreign assets.
- Allow an increase in the monetary base and inflation.

Selected Issues

Seigniorage.

Foreign Capital Inflows.

Financial Sector Vulnerabilities.

Vulnerabilities in the Financial Sector

- Liquidity risk
  - The risk that an unexpected shock can yield to an unanticipated withdrawal of deposits.
- Liquidity risk is *intrinsic* to the banking business and stems from the maturity transformation function of the banking sector
  - banks are required to hold mandatory reserves at the central bank to face such risk.
  - banks hold extra buffers of liquidity if the economy is subject to volatile liquidity shocks.

Vulnerabilities in the Financial Sector

- Exchange rate risk
  - The risk of unanticipated movements in the exchange rate yield to losses from the revaluation of assets and liabilities assets.
- Exchange rate risk stems from banks' net open position in foreign currency
  - The ratio of the Net Open Position in foreign currency to banks' capital should be low.

Vulnerabilities in the Financial Sector

- Interest rate risk
  - The risk of losses from the re-pricing of assets and liabilities due to change in interest rates.
- Interest rate risk stems from the different interest rate structure of assets and liabilities (fixed vis-a-floating).
  - Banks hedge interest risk by building portfolios of assets to match the interest rate structure of liabilities

Vulnerabilities in the Financial Sector

- Credit risk
  - The risk that loans will not be repaid
- Credit risk stems from the solvency of rest of the private sector: business cycle, unemployment rate, etc.
  - Banks hedge against credit risk by setting aside provisions to face losses from the occurrence of defaults.

Vulnerabilities in the Financial Sector

- Liquidity risk
- Exchange rate risk from the net open position in foreign currency
- Interest rate risk
- Credit risk

RECAP

CB, ODCs, DC,

Monetary and Financial Statistics allow to monitor the evolution of monetary aggregates.

If the money multipliers are stable the central bank can target money supply.

Money demand needs to be closely analyzed before making monetary policy decisions.

Seigniorage, foreign capital inflows, and financial sector vulnerabilities will also impact the effect monetary policy decisions.