

Introduction to the Financial System

Michael McMahon

Warwick

To Cover

1. The Abouts
2. Syllabus
3. Assignments and Grading
4. Some philosophical points about Economics
5. Introducing the financial system:
 - 5.1 The Basic Concept
 - 5.2 People
 - 5.3 Institutions
 - 5.4 Financial intermediation
 - 5.5 Financial Instruments
 - 5.6 Introducing bank balance sheets
 - 5.7 Effect on the macroeconomy

The Abouts

About the course

Game of 2 halves!

Part 1 Michael McMahon

Part 2 Marcus Miller

- Money and banking
- Practical emphasis - how it really is.
- UK/European emphasis

The Abouts

About the course

The main aims of the course are to:

- Explain the structure of modern financial systems;
- Outline the origins of money
- Give an overview of the role of interest rates in the economy, and consider a number of issues relating to the optimal design of monetary policy institutions;
- Give an overview of the implementation of monetary policy in practice;
- Examine the issues surrounding the Economic and Monetary Union (EMU) in Europe.

The Abouts

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The first half of the course is broadly split into 3 areas:

1. The financial system - institutions, instruments and the links between them;

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1. The financial system - institutions, instruments and the links between them;
2. Monetary policy - the theory and the practice;
3. Economic and Monetary Union (EMU) - economics of the €.

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About the course

By the end of this course, students should be able to:

- Understand the main elements of the financial system;
- Outline and give a detailed justification of the main goals of monetary policy;
- Assess the relative merits of different countries' monetary policy institutions;
- Critically discuss a whole range of current monetary and economic issues;
- Understand the foundations of European Monetary Union and its current challenges.

The Abouts

Textbooks and internet resources

- The Economics of Money, Banking and Financial Markets, by Mishkin
- The Economics of Money, Banking and Finance, by Howells and Bain
- Readings and other links will be placed on the course website
- The Economist magazine, The FT, WSJ, etc...

Basics Concepts You Must Be Aware Of

GDP - Real versus Nominal Concepts

$$\text{Nominal GDP in year } t = \sum_{i=1}^N p_{it} \cdot q_{it} \quad (1)$$

$$\text{Real GDP (year } K \text{ prices) in year } t = \sum_{i=1}^N p_{iK} \cdot q_{it} \quad (2)$$

Defining the price level as a deflator

$$\text{Base } Z \text{ deflator}_t = \frac{\text{nominal GDP}_t}{(\text{real GDP in year } Z \text{ prices})_t} \quad (3)$$

Calculating growth

$$\begin{aligned} \text{Growth between } t \text{ and } t + 1 &= \left(\frac{X_{t+1}}{X_t} - 1 \right) \quad (4) \\ &\approx \ln X_{t+1} - \ln X_t \end{aligned}$$

Philosophical Points about Economics

- Economics is a way of thinking - not a set of laws and rules
- This framework for thinking can then be applied to many topics
 - Freakonomics
- Empirical work is very tricky

The Basic Concept

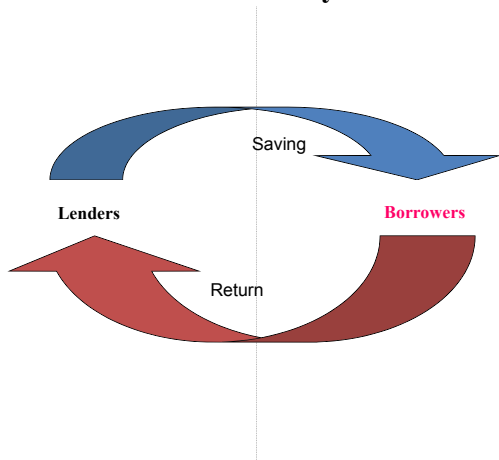
Definition

A financial system is defined as a set of markets for financial instruments, and the individuals and institutions who trade in those markets, together with the regulators and supervisors of the system.[Howells and Bain, 2003]

The basic function of the financial system is to transfer resources from those with excess funds for investment, to those who require more funds for investment.

The Basic Concept

The Financial System



The People

Borrowers

- Firms
- Households
- The government
- Foreigners - varies

The People

Lenders

- Households
- The government
- Firms
- Foreigners - varies

Same people - but usually in a different order.

Why do Lenders Lend?

Lenders will worry about:

- the return that they can get.
- the risk surrounding this return:
 - default risk
 - income risk
 - inflation risk
- liquidity

If we wish to encourage more lending, one way is to increase the return which we offer to lenders.

What determines borrowers behaviour?

Borrowers will worry about:

- the return that they must pay to get the funds;
- the terms of this return;
 - for example, debt is not state-contingent while equity is.
- the length and flexibility of the borrowing;
 - firms will not wish to have debts which are too easily recalled.

The Financial Account

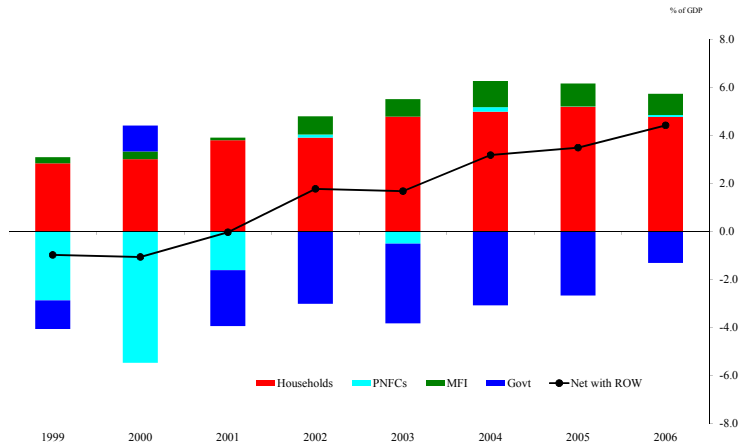
Like in double-entry book-keeping, all deficits (borrowing) must have an offsetting surplus (lender)

In the national accounts, it is possible to look at the financial accounts of different sectors over time.

In Europe:

- Private Non-Financial Corporations (PNFCs)
- Monetary and Financial Institutions (MFIs)
- Government
- Households (and NPISH)
- Foreigners

The Financial Account



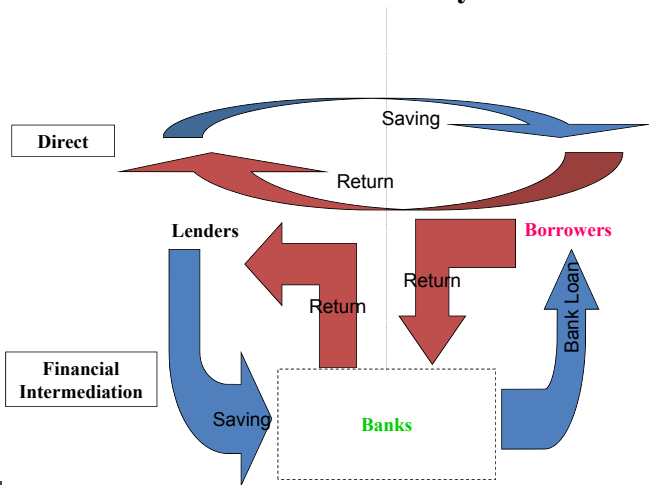
How the Matches Occur

Lending can be:

1. Completely direct
 - lenders seeking out other agents who need to borrow.
2. Direct lending through a market.
3. Through financial intermediation:
 - direct; or
 - through a market.

The Basic Concept

The Financial System



The Different Types of Market

There are lots of different financial markets for each different type of instrument (later)

- Primary versus secondary markets
- OTC versus exchange markets
 - Dealers versus Brokers
- Money-market versus capital market (maturity)

Financial Intermediation

Definition

Institutions that borrow funds from people who have saved and in turn make loans to others. [Mishkin, p.7]

So financial intermediates include banks, but will also include pension funds, insurance companies, etc...

Why go through a financial intermediate:

- Reduced transaction costs
- Risk diversification
- Maturity transformation
- Reduce Asymmetric Information
 - Adverse Selection
 - Moral Hazard

Financial Intermediation

Asymmetric Information (also very important in insurance)

1. Adverse Selection

- Occurs *before* the transaction
- Only choose those who are most risky - therefore potentially not choose anyone at all

2. Moral Hazard

- Occurs *after* the transaction
- Once they have the service, their behaviour changes in undesirable ways.

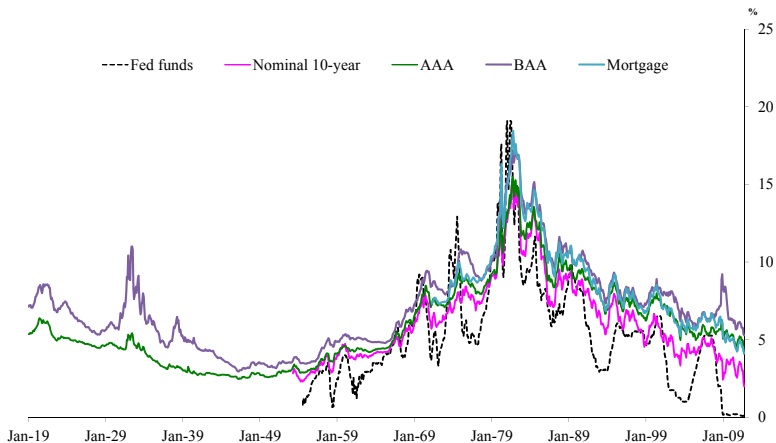
The Different Types of Instruments

The main two instruments to distinguish are:

- Equity
 - May get an annual share of profits as dividend
 - Owns part of the company \Rightarrow voting right
 - Price varies depending on supply and demand
- Debt
 - Contractually fixed return
 - per period interest
 - principal at maturity date
 - Preferential debtor
 - No voting right

No Single Interest Rate

There is NOT 1 single interest rate:



The Different Types of Instruments - US

Money-market instruments

- Treasury Bills
- Negotiable bank certificates of deposit
- Commercial paper
- Repos
- Eurodollars

Capital market instruments

- Stocks
- Mortgages (includes residential and commercial/farm)
- Corporate bonds
- Overall government bonds (includes state/local, and agencies)
- Consumer loans

The Different Types of Instruments - US

Money Market Instruments

Type of instrument	Level in US \$, billions			
	1980	1990	2000	2005
US Treasury Bills	216	527	647	923
Negotiable bank certificates of deposit	317	543	1053	1742
Commercial Paper	122	557	1619	1544
Repo agreements	57	144	366	518
Eurodollars	55	92	195	438

The Different Types of Instruments - US

Money Market Instruments

Type of instrument	Level (% of GDP)			
	1980	1990	2000	2005
US Treasury Bills	8	9	7	7
Negotiable bank certificates of deposit	11	9	11	14
Commercial Paper	4	10	16	12
Repo agreements	2	2	4	4
Eurodollars	2	2	2	4

The Different Types of Instruments - US

Capital Market Instruments

Type of instrument	Level (% of GDP)			
	1980	1990	2000	2005
Corporate Stocks	57	71	180	144
Residential Mortgages	40	50	56	76
Commercial and Farm Mortgages	13	14	12	15
Corporate Bonds	13	17	23	24
Government Bonds	18	22	29	36
Consumer Loans	13	14	12	15

Regulation

Financial services are a highly regulated industry (and have been for a long time). But why do we regulate financial services?

- Banking relies on confidence of public
 - fractional reserves system
 - liquidity mismatch between assets and liabilities
- Contagion...
- Consumer protection...not caveat emptor!

Regulation

Problems because of regulation:

- Moral hazard
- Compliance costs
- Costs of entry and exit are higher - more monopoly power!

Bank Balance Sheets

Assets		Liabilities	
Reserves	4%	Checkable Deposits	7%
Securities	23%	Time Deposits	59%
Loans	66%	Borrowings	26%
Other assets (e.g. physical capital)	7%	Bank Capital	8%
decreasing liquidity			

Basic idea is to make more on the assets than you pay on the liabilities \Rightarrow profits

Bank T-accounts

T-ACCOUNT \equiv CHANGE IN BALANCE SHEET

New account opened with cash (£100)

Assets		Liabilities	
Reserves	+£100	Deposits	+£100

If opened with a cheque from another bank, pretty much the same - cash in process of collection.

Bank T-accounts

$$\text{Reserves} = \text{RR} + \text{ER}$$

Assumes a 10% required reserves (% of deposits)

- ...but no (little) interest on reserves!
- So want to make use of the excess reserves of £90

Assets		Liabilities	
Required Reserves	+£10	Deposits	+£100
Excess Reserves	+£90		

Bank T-accounts

Can create new loans of £90

- First assume money immediately leaves bank after put in customer's account

Assets		Liabilities	
Required Reserves	+£9 -£9	Deposits	+£90 -£90
Excess Reserves	-£90 +£81 -£81		
Loans	+£90		

Bank T-accounts

Can create new loans of £90

- Or if money stays in the bank...have 81 of excess reserves
- Can repeat the process

Assets		Liabilities	
Required Reserves	+£9	Deposits	+£90
Excess Reserves	-£90 +£81		
Loans	+£90		

Bank T-accounts

Could have bought securities worth £90

- This assumes I buy the securities off someone outside my bank
- What if I bought securities off one of my own customers?

Assets		Liabilities
Required Reserves		Deposits
Excess Reserves	-£90	
Loans		
Securities	+£90	

Bank Management (briefly)

1. Liquidity and Reserve management
2. Asset and liability management
3. Capital adequacy - trade-off
 - Capital prevents failures (cushion against drop in value of assets);
 - Capital lowers return to shareholders;
4. Credit risk and interest rate risk

Liquidity and Reserve management

Consider the Bank which created the £90 of extra loans and kept no excess reserves (assume this is the whole balance sheet of the firm):

Assets		Liabilities	
Required Reserves	£10	Deposits	£100
Excess Reserves	0		
Loans	£90		

If there is a (relatively small) £10 withdrawal of deposits, deposits drop by £10 and reserves would be exhausted (-£10). The Bank is about to fail - they have a reserve shortage of £9...

Liquidity and Reserve management

Consider the Bank which created the £90m of extra loans and kept no excess reserves (assume this is the whole balance sheet of the firm):

Assets		Liabilities	
Required Reserves	£0	Deposits	£90
Excess Reserves	0		
Loans	£90		

They need to:

- Borrow the required reserves, at a cost, from other banks (borrowing liabilities +£9, reserves +£9);
- Borrow the required reserves, at the discount rate, from the CB;
- Try to recall loans worth £9 and put the money into reserves;
- Could sell securities or physical capital for £9m.

Bank Management (briefly)

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The Macroeconomic Effects of Financial Markets

Problem

Why might the financial system have macroeconomic effects?

END

Questions?