The Economics of Banking and Insurance

ADEC735001

Week 1

Jose Fillat

Calendar

- Classes every Tuesday, 6:30-9pm,
- Stokes Hall 141N (but you already know this)
- No class on March 5th (spring break)
- No class on April 16th (WCAS Senior Dinner)
- Office hours
  - Typically by appointment,
    - Before class
    - After class
    - Any other time that is convenient for all parts involved

Who's speaking?

- José Fillat
- PhD in Economics, University of Chicago
- Currently, Senior Economist and Policy Advisor in the Research Department at the Boston Fed
  - FOMC and Financial Stability Responsibilities
  - Advise Boston Fed's President on topics related to financial stability

Who’s speaking?

- Previously, Senior Financial Economist in the Banking Supervision and Regulation Department since 2008
  - Involved in implementation of
    - Basel II standards,
    - Dodd-Frank Act Stress Testing,
    - Capital Adequacy Assessment

Grading

- Class participation 20%
  - Need incentives to make the class interactive?
- Problem sets 10%
  - Short write ups (like the 1st one) or actual problem sets
- Class projects 40%
  - Long write ups or data manipulation projects
- Final project 10%
  - Longer write-up and data manipulation
- Team Presentation 20%

Assignments

- Will be distributed in class
  1. Some assignments may span more than 2 weeks (let's call them **projects**).
  2. Some will be weekly (let's call them **problem sets**)
  3. To keep you interested in recent events, I will ask you to submit EVERY 2 WEEKS two paragraphs on a news article (or a blog) that is related to the class material. I will call on some of you to **talk** about your article in class.
  - Syllabus will be updated as needed (we'll play by ear from time to time)
  - They deadline will be communicated at the time of distribution. Do not hand in late.
  - There will be group presentations of some projects

Goals of the Assignments

- Practice how to prepare **professional-looking** reports related to banking
- **Stay up to date** in terms of recent events related to the material we're learning (makes learning easier and *useful*)
- Develop strong **presentation and public speaking** skills (we're all shy, but we're among friends)

Readings

- Main reference for banking
  - Freixas, X. and J. Rochet (1997), Microeconomics of Banking. MIT Press.
- Main reference for insurance
  - Plantin, G, and J. Rochet (2009). “When Insurers Go Bust: An Economic Analysis of the Role and Design of Prudential Regulation”, Princeton University Press.
- Few articles will be added as needed: CANVAS
- But the class notes and class participation are most important to master the course material

Class dynamics

- Class participation matters
- We will experiment (i.e., be *patient* if it doesn't work) with a polling system in which I'll ask questions and you'll answer with your devices (phone, laptop, etc.)
- If there are questions, interrupt at any time
- If something doesn't sound right, it is likely not right, bring it up and let's discuss!
- I will use Canvas extensively

Banking

- **Role of Financial Intermediaries (today)**
- Radiography of a bank's balance sheet
- **Banking theories**
  - **Liquidity insurance, asymmetric information, and competition (industrial organization)**
- Risk measurement and management
- Regulatory Framework
- **Globalization**

Insurance

- **Role of insurance companies**
- Insurance company types
- **Insurance products and risks**
- Regulatory framework
- Prudential supervision

The Role of Financial Intermediaries

Freixas and Rochet

Chapter 1

What is a Bank?

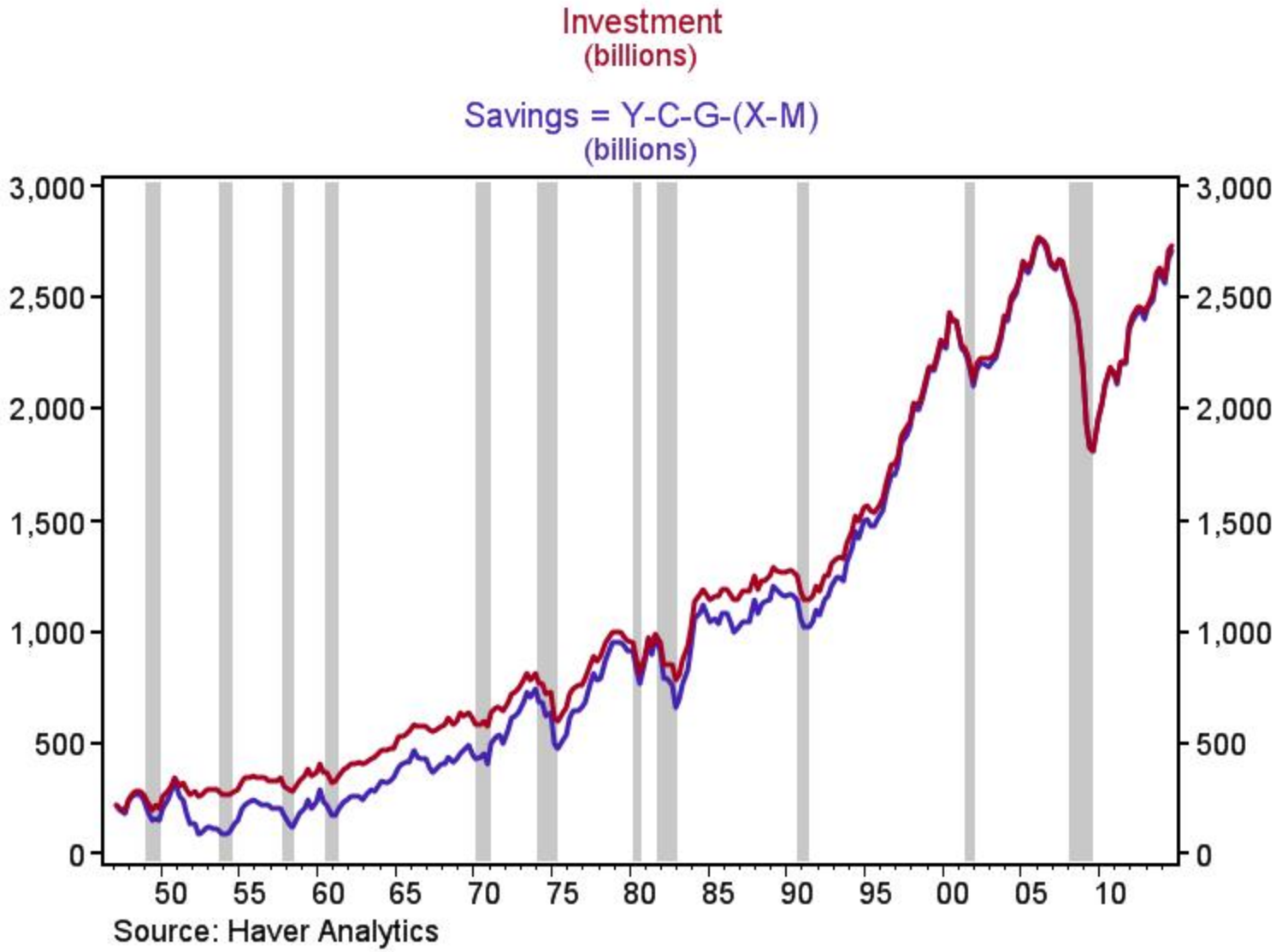
- We need to start with a bigger question:

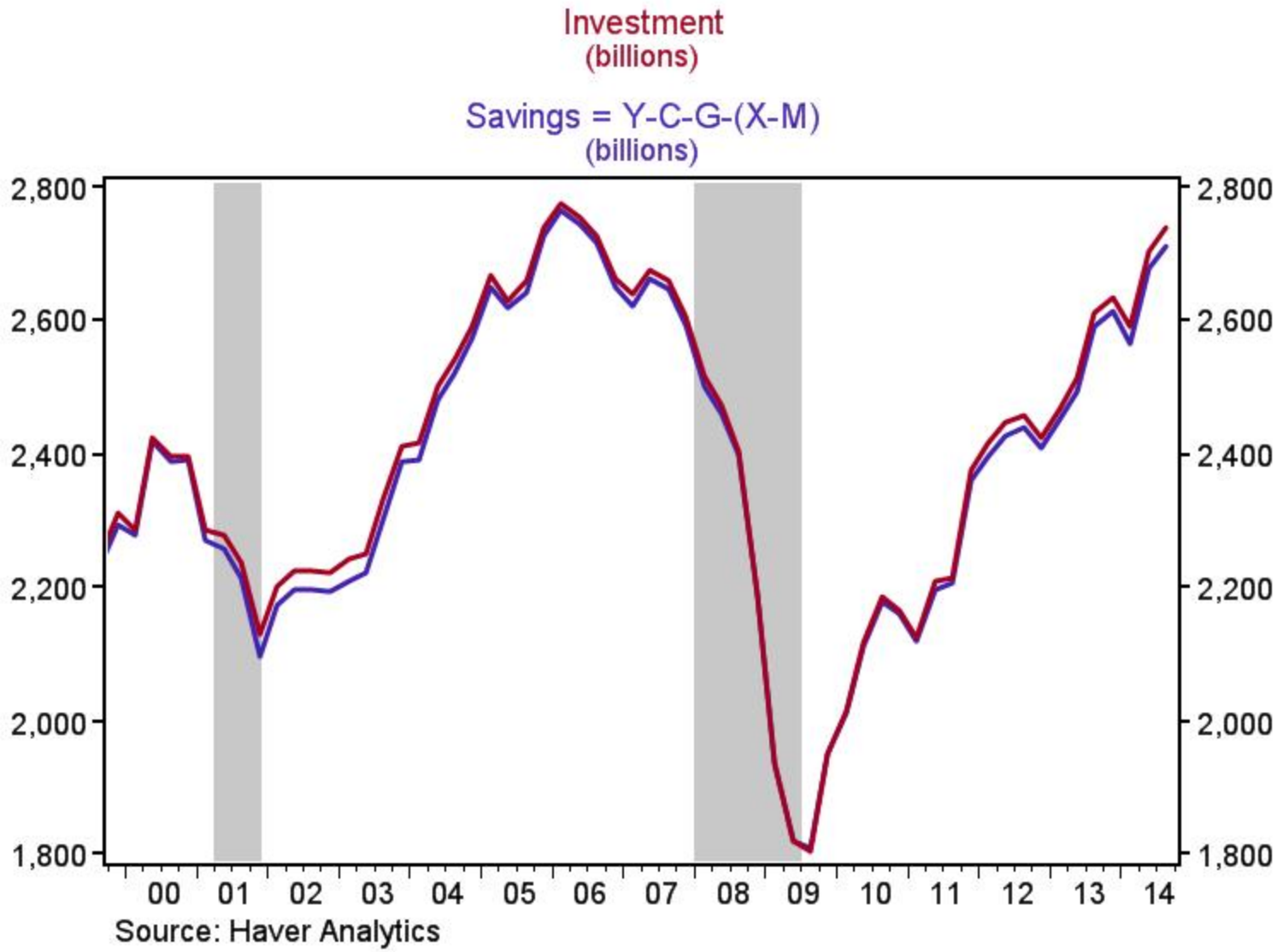
$$C+I+G+(X-M) = Y$$

- Hence
  - $I=Y-C$

From Macro 101

Investment = Savings


Investment
(billions)
Savings = Y-C-G-(X-M)
(billions)
3,000
2,500
2,000
1,500
1,000
500
0
50
55
60
65
70
75
80
85
90
95
00
05
10
Source: Haver Analytics


Investment
(billions)
Savings = Y-C-G-(X-M)
(billions)
2,800
2,600
2,400
2,200
2,000
1,800
00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
Source: Haver Analytics

(Not so) paradox of thrift

- "A penny saved is a penny lost" – B. Franklin
- "A penny saved, goes to a checking account in a bank, which issues a loan to a homebuyer, who buys a house that has to be built, equipped, and will have a TV, Internet, cable, which have to be provided, where he'll eat food, either bought in the market or delivered from a restaurant, who pays workers who save some more pennies…" – J. Fillat
- Growth comes from productivity
- Productivity improves with human and physical capital
- Human and physical capital accumulate via…

Investment (= savings)

So, what is a Bank?

- Simple (legal) definition: *a bank is an institution whose **current** operations consist in granting **loans** and receiving **deposits** from the **public**.*
- *Current:* this is the core activity
- Loans *and* deposits: it is the combination that defines a bank (*S=I*, remember?)
  - [only deposits = **narrow banking** (Kotlikoff article posted on Canvas)]
- *Public:* general public, not necessarily financial experts, or professional investors.

Bank Fragility

- The three components of the legal definition make a bank **fragile**
  - Loans and deposits have different characteristics
    - Liquidity and maturity mismatch
  - General public: does not necessarily have all the tools to assess the bank's safety and soundness
  - Public good: safe payments system
    - Public good → public intervention (market failure)
- Interesting book: “Fragile by design” by C. Calomiris.

Financial Intermediation

- Main banking functions
  1. OFFER LIQUIDITY AND PAYMENT SERVICES
  2. TRANSFORM ASSETS
  3. MANAGE RISKS
  4. PROCESS INFORMATION / MONITOR BORROWERS
  5. EFFICIENTLY ALLOCATE RESOURCES
     - Merton (1993): life-cycle allocation of household consumption and allocation of physical capital to most productive use

Liquidity and Payment Services

- (Fiat) money = medium of exchange, no intrinsic value
  - Money Changing (before fiat money)
    - Needed to verify value of coins
    - Management of deposits as a result
      - Costly: safekeeping services are costly (vaults)
      - Convenience of accessing "good" money safely stored

  - Payment Services
    - Networks to facilitate transfers between bank accounts.
    - In history: payments across countries & transport of coins??? Banks relevance to clear imbalances


SAFE DEPOSIT VAULT
VAULT
ATTENDANT

Asset Transformation

- Convenience of denomination
  - Size of individual deposits vs individual loans
- Quality transformation
  - Diversification of portfolio and returns
- Maturity transformation
  - Willing to invest short term (liquidity demand) vs. necessity to borrow long term

Manage Risk

- Credit Risk
  - Wholesale
  - Retail
- Market Risk
  - Liquidity Risk
  - Interest Rate Risk
- Operational Risk
- Off-Balance-sheet operations

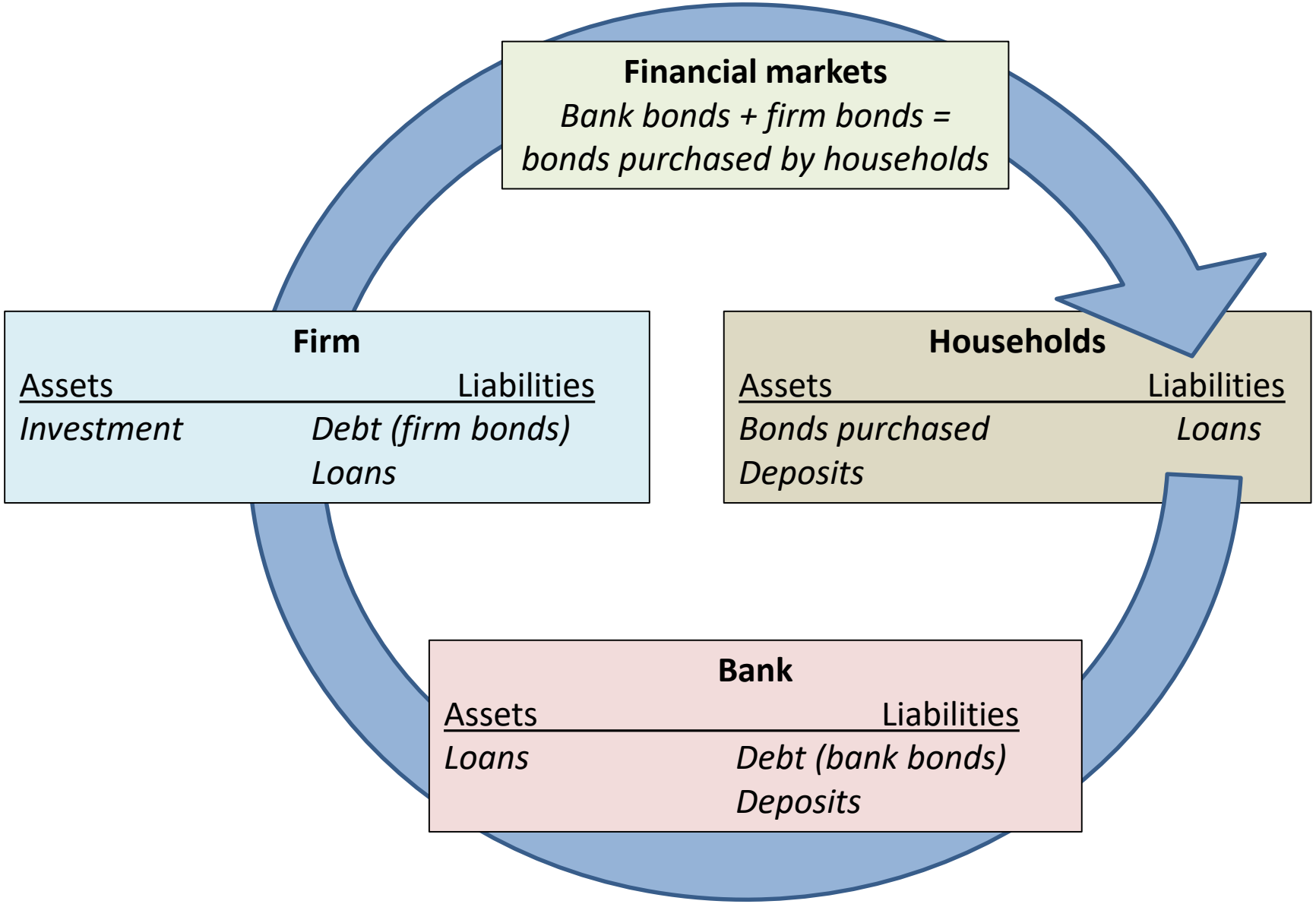
Monitor Borrowers
Process Information

- Monitoring technologies
  - Credit rating systems
  - Credit scoring
  - Relationship banking
- Exclusive to banks
- Alternative: financial markets
  - Issuing a security in the market (equity or debt)
    - Prices will reflect market information, while banks may have private information

Efficient Allocation of Resources

- The question is still out there
  - Are bank-based financial system more efficient at allocating resources (and investing) than market-based financial systems?
  - There is some evidence
    - Allen and Gale (1995): Bank-based better at risk-diversification
    - Allen and Gale (2000): Market-based better at financing new technologies (and to some extent spur economic growth)

Simplest Banking Theory



The Model

- 2 periods (today and tomorrow)
- A representative consumer
  - Chooses between consuming today or tomorrow and how to allocate the savings in bonds and deposits
- A representative firm
  - Chooses how much to invest and how to finance itself
- A representative bank
  - Chooses how much to lend, how many deposits to accept and how much debt to issue.

The Consumer

$$\max u(C_1, C_2)$$

$$s.t. \qquad C_1 + B_h + D_h = \omega_1,$$

$$pC_2 = \Pi_f + \Pi_b + (1+r)B_h + (1+r_D)D_h$$

- ω_1 is the initial endowment
- p is the price of consumption tomorrow
- Π_f and Π_b are the "dividends"
- r and r_d represent interest rates (debt and deposits). ONLY SOLUTION ➔ $r = r_d$

The Firm

$$\max \Pi_f$$

$$s.t. \qquad \Pi_f = pf(I) - (1+r)B_f - (1+r_L)L_f,$$

$$I = B_f + L_f$$

- f is the (generic) production function
- firm uses bonds and loans to invest
- ONLY solution ➔ $r = r_L$

The Bank

$$\max \Pi_b$$

$$s.t. \qquad \Pi_b = r_L L_b - r_b B_b - r_D D_b$$

$$L_b = B_b + D_b$$

- Bank chooses supply of loans, demand for deposits, and issuance of bonds to max profits

Equilibrium

- Equilibrium:
  - PRICES (r, r_L,r_D , p)
  - *QUANTITIES*
    - *(C_1, C_2, B_h, D_h)*
    - *(I, B_f, L_f)*
    - *(L_b, B_b, D_b)*
  - *Such that agents are optimizing and markets clear*
    - $I = B_h + D_h$ $\qquad\qquad$ $L_f = L_b$
    - $D_h = D_b$ $\qquad\qquad$ $B_h = B_f + B_b$
  - *Only equlibrium: all rates are equal*

Conclusion

- In this world, with no frictions, banks make zero profits and are totally IRRELEVANT.
- Even WITH UNCERTAINTY (contingent claims)
- Firms are indifferent between loans or debt (Miller-Modigliani)
- How do we get banks to matter?
  - **Incomplete markets** (there are some situations that cannot be insured) – information frictions
  - **Industrial organization**: costs, competition structure

Coming up next…

- Next week:
  - BALANCE SHEET OF A TYPICAL BANK
    - ASSETS
    - LIABILITIES
    - CAPITAL
  - PROFIT AND LOSSES ACCOUNTS
- ASSIGNMENT
  - Read Allen's 2000 presidential address (posted)
  - Write 2-3 pages on what you think caused the most recent financial crises /as if you had to write an article for "The Economist".