

Economics 470/570
Fall 2011
Midterm Exam 1

Name: _____

Part I - Definitions. Define each of the following (4 points each, 20 points total).

1. Fiat money
2. Discount window
3. Federal funds rate
4. Moral hazard
5. FOMC

Part II. Answer each of the following questions (16 points each, 80 points total).

1. (a) Describe the structure of Federal Reserve districts and Federal Reserve district banks. (b) Describe the major functions of Federal Reserve district banks.
2. (a) Suppose that there are 10 individuals, each with \$10,000 in savings that they would like to lend. Suppose there are also 100 different people who want to take out \$1,000 loans. Assuming an expected default rate of 10%, use this example to show how pooling risk through financial intermediation can increase the efficiency of financial markets. (b) Besides pooling risk, pooling small deposits, and pooling over time, what else do financial intermediaries do to increase the efficiency of financial markets?
3. (a) How independent is the Fed? What factors contribute to independence? What factors work against independence? (b) Discuss arguments for and against the independence of the Fed.
4. (a) What is adverse selection? Give an example of adverse selection in financial markets. (b) How can the adverse selection problem be overcome?
5. (a) Suppose that the Fed injects \$1,000 in reserves into the banking system. Assuming that the required reserve ratio is 10% and that both excess reserves and currency holdings are zero, use t-accounts to illustrate the multiple deposit creation process. Use this result to obtain the simple deposit multiplier. (b) Explain intuitively how the multiplier changes if banks hold excess reserves.

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Midterm 1

Part I - Definitions

- ① Fiat money: This is money that is not backed by anything.
- ② The discount window is where banks take out discount loans, i.e. loans between the Fed (which are handled by the district banks) and banks.
- ③ The federal funds rate is the rate banks charge each other for overnight loans of reserves
- ④ This is when a contract, e.g. insurance coverage, alters behavior (e.g. less careful about fires with fire insurance).
- ⑤ The FOMC = Federal Open Market Committee.

This committee sets monetary policy.
It meets approximately 8 times per year.

The committee is made up of

- 7 Board of Governors
- 1 NY Fed Representative
- 4 Rotate among the other
11 Fed District Banks

Part II - Essay

(2)

① (a) There are 12 Federal Reserve districts, and they were distributed geographically and based upon population size. There are also 12 district banks, with branches within the districts, and each is

1. A quasi-public institution

2. Owned by member banks

There is a bank president (appointed by the Board of Governors) and a Board of Directors for each bank. The Board has 9 members

3 Type A: elected by member banks, generally bankers

3 Type B: elected by member banks, from business community

3 Type C: Appointed by the Board of Gov., Represent public interest, cannot be bankers.

(b) The major functions are:

1. Clear checks

2. Issue currency, withdraw old

3. make discount loans within the district

4. Examine member banks

5. Collect Data, evaluate bus conditions, do research on mon. policy.

6. Evaluate proposed mergers in District.

7. Act as Liaisons between business community and Fed Reserve System

2. (a) Suppose that the individuals with the savings they would like to lend are risk averse. In particular, suppose that they are not willing to risk losing all of their savings, at least not at an interest rate anyone would be willing to pay. There might be some individuals who would take a chance anyway, but for the most part loan activity would be expected to be low. This is because (a) it would be hard for individuals to find each other, so matching borrowers and lenders is difficult, (b) individuals aren't experts at assessing credit risk, so when they meet some stranger in (a) will they be willing to lend them money? How do they find out if they are a good risk? And (c) even if these problems are solved, there still wouldn't be any loans because with a default rate of 10%, 1 of the 10 people will lose everything and that's not a risk they are willing to take.

Now suppose that there are intermediaries. Also suppose they make loans at 20%. Then, in this case, loans = $(100) * (\$1,000) = \$100,000$. But not all of it is paid back. Subtract off defaults of 10%, i.e. subtract \$10,000 leaving a payback of \$90,000.

Next, add interest to the \$90,000. Since 90 people pay back \$200 in interest each, the interest return is \$18,000, so the total amount paid back, with interest, is \$108,000. Now divide this among the lenders, i.e. divide this by 10 to get \$10,800 returned to each person who made a loan. Thus, instead of 1 of the people making loans losing everything, everyone makes 8%.

Overall, then:

Without an intermediary: Few, if any loans are made.

With an intermediary: Risk falls, the chances of losing everything falls, so more loans are made. The increase in loans increases investment, which in turn increases output. Hence, the economy is more efficient with intermediaries than without (and the intermediaries may also lower default risk because of their expertise at assessing the credit worthiness of borrowers, an effect I did not include in the example).

(b) Basically, intermediaries lower transactions costs (which we described in class with examples of moral hazard and adverse selection) and they lower default risk. That is, they lower transactions costs by lowering search costs (borrowers and lenders finding each other), by lowering the costs of drawing up contracts and other documents (they pay once for a general contract, then spread the cost over many, many loans), and through having the means and knowledge to check the credit worthiness of borrowers (they do it faster and cheaper). And, by using their accumulated expertise at checking credit worthiness, they lower default rates.

(4)

② The Fed is fairly free from Political Pressure because

1. 14 year, non-renewable terms for governors. The term is longer than the president who appointed them, and since it cannot be renewed, they won't change policies in an attempt to get reappointed.
2. Independent financially. The Fed holds securities, makes billions per year. From these earnings it can finance itself completely and still have funds left over (which it gives back to Treasury at end of year). So, it cannot be pressured financially by Congress.

[cont.]

[cont.]

⑤

- ③ 3. Can refuse audits by GAO (General Accounting Office, the Govs "watchdog") giving it further financial independence

Factors Against Independence:

1. Congress can still pass legislation to take away independence so freedom not unlimited
2. Chair appointed by president, Testifies before Congress, and is subject to political pressure.
3. Public Opinion. If, everywhere they go, parties, store, etc., the public expresses their displeasure with policy, then this can affect board members

[cont.]

③ [cont.]

⑥

For Independence

1. Subject to less political pressure, less temptation to pursue SR objectives which are costly in LR. E.g., a recession may be good in LR if inflation falls, but bad in SR. A politician may only care about SR.
2. Avoids Political Business Cycles, i.e. avoids manipulation of economy to get reelected (Create boom today → reelection, but inflation in LR).
3. Less temptation to monetize debt.
4. Cross-country studies show that Less independence is associated with higher Inflation.

[cont.]

② Against Independence

1. Monetary policy too important to be in the hands of non-elected officials free of public accountability. Should be in control of elected officials who will pursue the public interest. Elected officials make LR decisions all the time, there is nothing special about monetary policy.
2. Difficult to coordinate Monetary and fiscal policies
3. Book adds that Fed has made mistakes

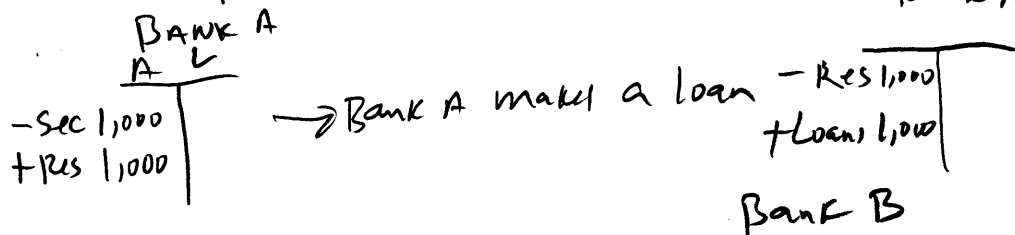
(4) (a) Adverse selection is when there is a problem distinguishing a good risk from a bad one before making a loan or providing insurance. It is caused by asymmetric information, e.g. when a bank offers loans at a particular interest rate and high risk loans are more likely to show up (e.g. projects with high expected return, but also high risk).

(b) The two main ways it can be overcome are to increase the amount of information (to correct asymmetric info, but can be costly), or to provide guarantees (e.g. if a project goes bad, the bank gets to keep posted collateral. That helps to discourage excessive risk taking).

Information can be enhanced by government decree, e.g. disclosure requirements, or through private sector information brokers.

(9)

⑤ (a) The sequence would be as follows (Assuming the Fed purchases a security from Bank A)



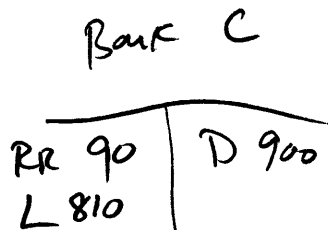
→ The loan is used to purchase a security, and the amount deposited in Bank C.



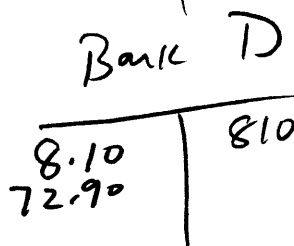
The Bank puts 100 in Res. Res, Loans out 900

→ Loan spent, deposited in Bank C

The Bank puts 90 in RR, Loans out 810.



The \$810 is spent, deposited in Bank D



This continues. ADD up all deposits:

$$(1,000 + 900 + 810 + \dots) = 1,000(1 + .9 + .9^2 + \dots)$$

$$= \left(\frac{1}{1-.9}\right)(1,000) = \left(\frac{1}{.1}\right)(1,000) = \Delta \text{ Demand Deposits.}$$

So, the formula is $\Delta DD = \left(\frac{1}{\text{Res Req}}\right) (\Delta \text{ Reserves})$

↑
mult

↑
1,000 in example

[Cont.]

⑤ (b) When Banks hold excess reserves, it has the same effect as if they were required to do so. Thus, in this case the multiplier is

$$\frac{1}{r_D + e} \rightarrow \frac{ER}{D}, \text{ i.e. excess reserves to deposit ratio}$$

↓
req. res ratio

Thus, the multiplier falls. Intuitively, this is because banks are holding more in reserves and hence making smaller loans, and this reduces the size of the deposits that are created at each step of the multiple deposit creation process.