SUNY-Binghamton
Spring 2021

Name _____

Economics 450
Monetary Economics
Second midterm exam

No calculators. Total points on exam: 134**.** Good luck! Look over the entire exam before you begin. If I ask you to explain your answer, your grade for the question will depend on your *explanation*.

1) 10 pts. What is "commodity money"? Note that I am asking for a definition, not an example of commodity money.

2) At the bottom of this page is a list of words and phrases. Each of the sentences below can be completed with one of the words or phrases. A word or phrase may be the answer to more than one sentence. Not all of the words and phrases are answers to a sentence. 2 pts each.

a) In a legal procedure called _____, a borrower's assets are seized and liquidated and the proceeds are used to pay the borrower's debts as much as possible.

b) A financial intermediary that collects information about a potential borrower to judge the probability that the potential borrower would default on a loan is using _____.

c) In order for a liquidity crisis to occur, a financial intermediary must be borrowing short-term to finance purchases of long-term assets, and an *additional* condition must also hold.. The additional condition is _____.

d) When one party to a transaction has information that the other party lacks, that is called _____.

e) By holding _____, a financial intermediary can guard against the risk of a liquidity crisis, but it may still remain subject to interest-rate risk.

f) In order to counteract a borrower's incentive to do high-risk, high-return things with borrowed money, a lender will lend only to a potential borrower with positive _____ and may also require _____ for the loan.

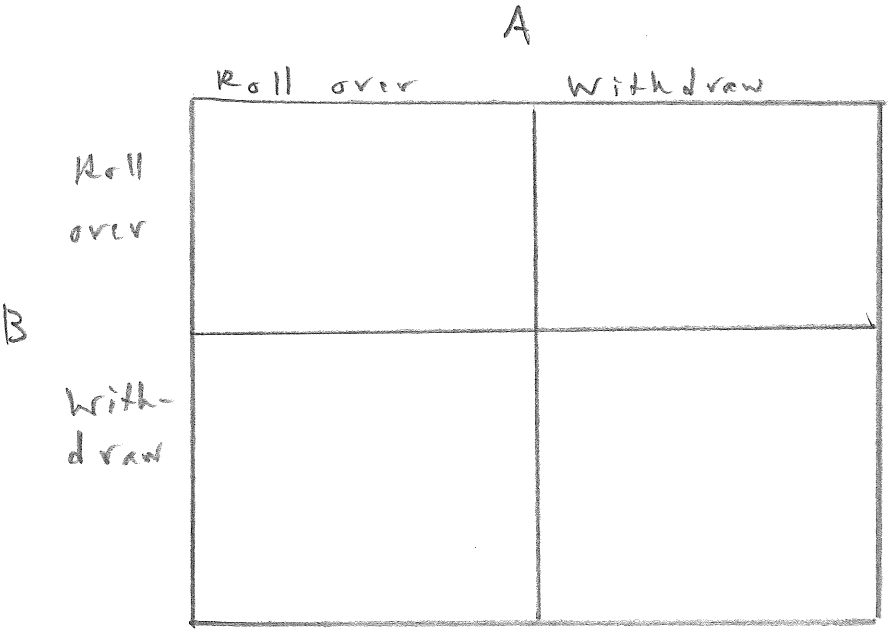
g) A financial intermediary can prevent a borrower from carrying out a business project in a high-risk way by using _____ and _____.

Screening	*Lender of last resort*
Fire sale	*First come, first served*
Monitoring	*Net worth*
Secondary reserves	*Collateral*
Moral hazard	*Restrictive covenants*
Liquidity	*Bankruptcy*
Reserves	*Asymmetric information*
Bond rating	*Interest-rate risk*

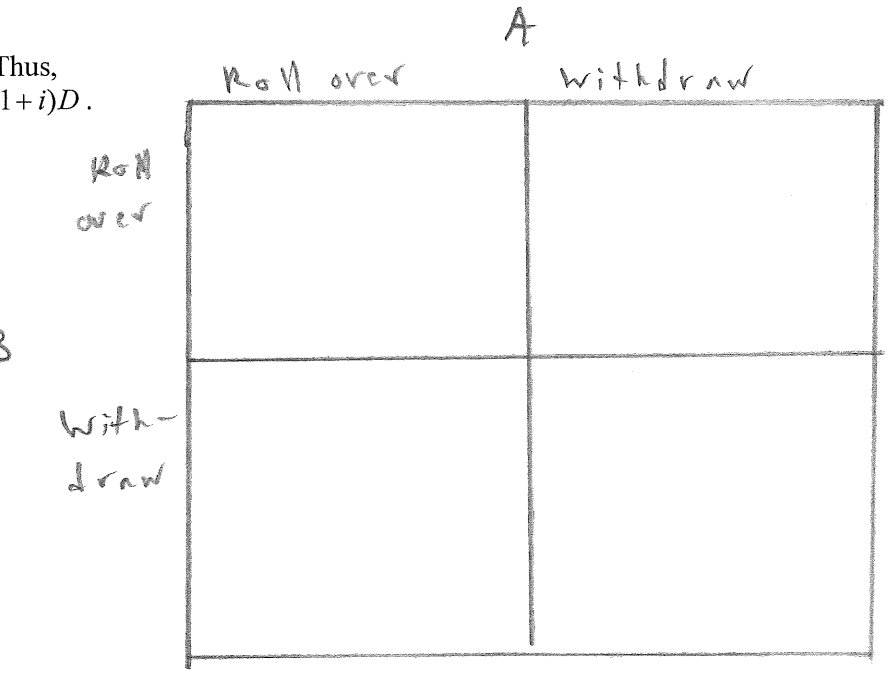
3) 10 pts. In the context of financial regulation, what is "resolution authority"?

4) A financial intermediary (FI) has been borrowing overnight, from just two lenders, to fund purchases of relatively liquid bonds. Each lender has been lending $\$D$ to the FI. Every morning, each lender has to decide whether to roll over her loan to the FI, or to withdraw her loan.

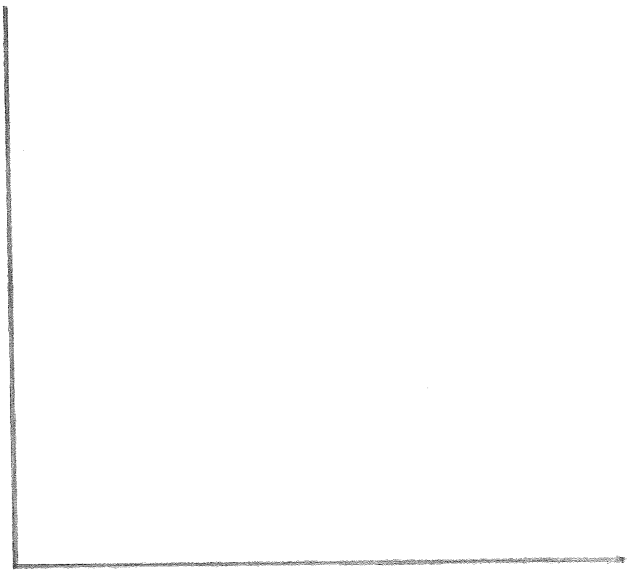
a) 10 pts. Suppose that, if both lenders to the FI choose to roll over, the FI remains in business and will repay both lenders with interest: each lender will receive $(1+i)D$. If either or both of the lenders withdraws, the FI must immediately sell its bonds at low prices. In that case, each lender receives a fraction z of the money that is owed her, where z is less than one. That is to say, if one withdraws and the other doesn't, the lender who withdraws gets zD; the lender who rolls over gets $z(1+i)D$. If both withdraw, each gets zD. In each of the four segments of the box, list what is received by "lender A" and "lender B." Circle the segment(s) of the box that is (are) an equilibrium.



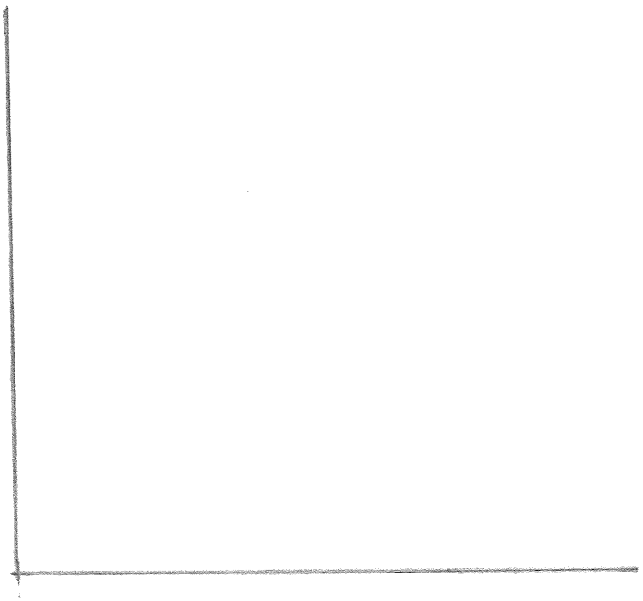
b) 10 pts. Now suppose that the lenders to the FI have insurance policies that will pay off their loans to the FI should the FI default on the loans. Thus, if both lenders roll over, each lender will receive $(1+i)D$. If one withdraws and the other doesn't, the lender who withdraws gets D; the lender who rolls over gets $(1+i)D$. If both withdraw, each gets D. In each of the four segments of the box, list what is received by "lender A" and "lender B." Circle the segment(s) of the box that is (are) an equilibrium.



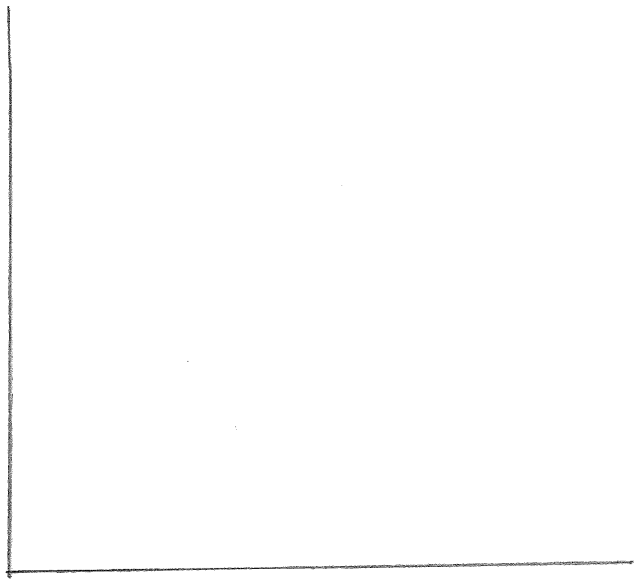
5) a) 5 pts. In 2008 the Fed used a "tunnel" or "symmetric corridor" system. It paid interest on reserve balances at a rate that was always set half a percent less than the target overnight rate. The interest charged for an emergency loan to cover a reserve shortfall, called the "primary credit rate," was always set half a percent more than the target overnight rate. On the graph, draw what would happen to reserve supply and demand when the Fed increased the target overnight rate. Be sure to label the horizontal axis.Denote the "before" target rate by r_0^T. Denote the "after" target rate by r_1^T.



b) 5 pts. Today the Fed uses a "floor" system. On the graph, draw what happens to reserve supply and reserve demand when the Fed increases its target overnight rate today. Be sure to label the horizontal axis. Denote the "before" target rate by r_0^T. Denote the "after" target rate by r_1^T.



c) 5 pts. Before 2007, the Fed used yet another system. On the graph, draw what usually happened to reserve supply and reserve demand when the Fed increased its target overnight rate before 2007. Be sure to label the horizontal axis. Denote the "before" target rate by r_0^T. Denote the "after" target rate by r_1^T.



6) Consider an economy with no banks. A person faces a situation similar to, but not exactly the same as that described by the Baumol-Tobin model. As in that model,

Y is annual real income received at the beginning of the year

i is the annual return to holding bonds, paid at the end of the year.

N is the number of financial transactions the person engages in.

$M/P = \frac{Y}{2N}$ is the average money balance if the person engages in N financial transactions.

F is the time-and-trouble cost of one financial transaction.

In this economy, however, *money pays interest* at an annual interest rate $\hat{i}$. $\hat{i}$ is less than i.

a) 10 pts. Derive an equation that shows the average real money balance a person will hold. SHOW ALL STEPS.

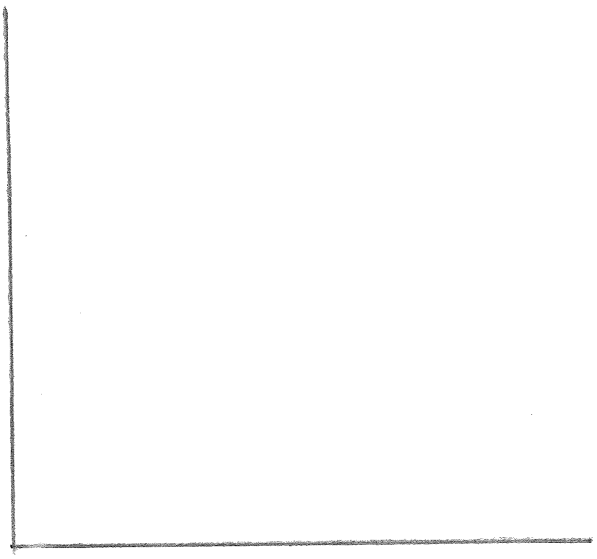
6) continued.

b) 5 pts. Suppose everyone in the economy is exactly like the person in a). What happens to the interest rate in the economy if there is no change in the supply of real money balances, but there is an increase in $\hat{i}$? Make sure your answer is consistent with your answer to a), and draw a graph to illustrate your answer.

c) 10 pts. Let X denote the supply of real money balance per person, that is $X = (M / P)^S$. Starting from your answer to a), derive an equation that gives the equilibrium value of i in this economy (on the left-hand side of the equation) as a function of X, Y, F and $\hat{i}$ (all on the right-hand side of the equation). SHOW ALL STEPS.

7) Consider an economy with no banks and no central bank, just money and "bonds" that pay interest *i*. Denote the money supply by M^S. Denote the price level by *P*.

a) 5 pts. Suppose that in this economy there is an increase in the price level, with no change in M^S. On the graph, illustrate what happens in the economy. Make sure that you label the axes of the graph. Denote the "before" interest rate by i_0. Denote the "after" interest rate by i_1.



b) 5 pts. Suppose that the increase in the price level was specifically from 1 to 3 (measured by the CPI, say). Suppose also that you control the money supply, and you want to return the economy's interest rate to the original value. If the original money supply was 200 units, what is the money supply that you will choose to return the interest rate to its original value?

_____ units

8) 10 pts. What is a financial intermediary's "capital"? Why might owners of a financial intermediary want to operate with the least possible amount of capital?