**Name** _____

Economics 450 Monetary Economics
Second midterm exam

**No calculators**. Total points on exam: 120**.** 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) There are $100 million in deposits (checking accounts and savings accounts) at the Oxford National Bank. The bank has borrowed $50 million by issuing short-term bonds. The bank has purchased $100 million in long-term Treasury bonds, and made $80 million worth of loans to local businesses. It also holds $10 million in cash.

a) 5 pts. What is the bank's capital? $_____

b) 5 pts. How much does the bank hold in "secondary reserves"?   $_____

2) 10 pts. Draw the yield curve looks like under each of the following circumstances. Use a dotted line to show what the yield curve would look like under the expectations hypothesis. Use a solid line to draw the actual yield curve with term premiums.

a) People think future overnight rates may be higher, lower, or the same as today's - all possibilities equally likely.

b) People think future overnight rates may be the same as today's or higher.

3) 10 pts. On the reserve supply/demand graphs below, draw what happens when the central bank raises the target overnight rate. Clearly indicate what is "before" and what is "after."

a) Under the corridor system.

b) Under the Fed's old pre-2007 system.

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4) NOT APPLICABLE TO SPRING 2021

5) NOT APPLICABLE TO SPRING 2021

6) 10 pts Hanna borrows $200 from Bill, promising to pay him his money back whenever he asks for it, with interest $i$. She borrows another $200 from Jane on the same terms. Hanna takes the $400 and buys one illiquid coupon bond.
- If Bill and Jane roll over (do not withdraw) their loans, after a while Hanna will pay each one back the $200 plus interest.
- If both Bill and Jane withdraw their loans, Hanna will sell the bond immediately for a low price, just $200, and divide up the $200 equally between Bill and Jane - each will receive $100.
- If one withdraws and the other rolls over, Hanna will sell the illiquid bond and gives the one who withdrew $100. Hanna will take the remaining $100, invest it in very short-term Treasury bills, and after a while pay the person who rolled over the loan $100 plus interest $j$, where $j$ is less than $i$.
Portray this
 situation
in the boxes
 to the
right. Circle all
 of the
outcomes that
 can be
an equilbrium,
as we
defined equilibrium
in class.

7) 10 pts. Now suppose that, as above, Hanna borrows $200 from Bill, promising to pay him his money back whenever he asks for it, with interest $i$. She borrows another $200 from Jane on the same terms. Hanna takes the $400 and buys one illiquid coupon bond. But the possible outcomes are a bit different.
- If Bill and Jane roll over (do not withdraw) their loans, after a while Hanna will pay each one back the $200 plus interest.
- If both withdraw their loans, Hanna will sell the bond immediately for a low price, just $200, and divide up the $200 equally between Bill and Jane - each will receive $100.
- If one lender withdraws and the other rolls over, the bond will be sold as quickly as possible for the price of $200 and the $200 will be divided evenly between Bill and Jane, but there will *also* be a difficult case in bankruptcy court. The case will cost *both* lenders - Bill and Jane - $5 in lawyers' fees ($5 each).
Portray this
 situation
in the boxes
 to the
right. Circle all
 of the
outcomes that
 can be
an equilbrium,
as we
defined equilibrium
in class.

8) Consider a situation in which a central bank pays an interest rate $r_D$ on balances in banks' reserve accounts, and charges an interest rate $r_P$ for emergency overnight loans to cover deficiencies in banks' reserve accounts. $r$ is the market overnight rate. *Read all parts of this question before beginning to answer it.*

a) 5 pts. In a system like this, $r_D$ is supposed to act as a floor for the market overnight rate, so that $r$ cannot possibly fall below $r_D$. Explain why this would be so. I am looking for words here, *not* a graph.

b) 5 pts. When Fed policymakers tried to use the "floor" system of interest-rate control, they found that the market overnight rate actually fell below $r_D$. Explain why this was so.

c) 5 pts. What did Fed policymakers then do to prevent $r$ from falling very far below $r_D$?

9)10 pts Jimmy Buffett opens a bank. Jimmy announces that he will lend money to anyone who wants to borrow, at an interest rate of 5 percent. He finds that he does not make a profit because a large fraction of borrowers default on their loans. Jimmy raises his interest rate from 5 to 10 percent, still lending to anyone who wants to borrow at that higher rate. Is it likely that the increase in the interest rate will increase Jimmy's profit? Explain why or why not.

10) 10 pts. Suppose Wikileaks releases previously secret financial information about *all* companies that have issued bonds and makes the information available to everyone. Wikileaks will continue to release such information in the future. The information is relevant for assessing the probability that a company will default on its bonds. For some bonds, the information tends to raise one's estimate of default probability; for other bonds, it tends to reduce one's estimate of default probability. Before Wikileaks released the information, everyone knew the information existed and knew some people had it, but only a few people had the information. Consider the *average* spread between all corporate bonds and Treasury bonds of matching maturities. Will the Wikileaks information tend to increase, decrease, or have no effect on this average spread? Explain.

11) NOT APPLICABLE TO SPRING 2021

12) 10 pts. A financial intermediary that makes profit can distribute the profit to the owners of the financial intermediary. Or it can use the profit to buy more bonds to be held by the financial intermediary. What is the *cost* to the owners of using the profit to buy more bonds to be held by the financial intermediary? What is the *benefit* to the owners of using the profit to buy more bonds to be held by the financial intermediary?

More questions

4) If bond raters such as Moody's or Standard & Poor's did not exist, more companies would borrow by taking loans from banks, rather than by issuing bonds. Explain.

5) A bond that is generally known to have no default risk must be perfectly liquid. A bond that has high default risk can also be perfectly liquid. A bond that probably has low default risk can be less liquid than a bond that is generally known to have high default risk. Explain. Make sure you explain all three of these things.

14) Explain why lenders lend only to people or businesses with substantial net worth.

15) Explain why lenders usually require borrowers to put up collateral.