

Econ 1015

Third Midterm Exam (Version 1)

Prof Haslag, April 23, 2009

Name: \_\_\_\_\_ Lab Section: \_\_\_\_\_ Student ID#: \_\_\_\_\_

*I promise or affirm that I will not at any time be involved in cheating, plagiarism, fabrication, misrepresentation, or any other form of academic misconduct as outlined in the University of Missouri Rules. I understand that violating this promise will result in penalties as severe as indefinite suspension from the University of Missouri.*

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Student Signature

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Date

1. (8 points) Consider a bond issued by Microsoft to finance a new “clean” room. The face value of the bond is \$100,000. The coupon rate is 4 percent and the current market interest rate is 2 percent. The Microsoft bond matures in three years. Compute the coupon payment made each year. Compute the price of the bond.

**(3pt) Coupon payment =  $\$100,000 \times 4\% = \$4,000$**

**(5pt) Price =  $(\$4,000/1.02) + [\$4,000/(1.02)^2] + [\$4,000/(1.02)^3] + [\$100,000/(1.02)^3] = \$105,768$**

2. (8 points) Use the loanable funds model to describe the effect that an increase in government spending has on the equilibrium interest rate and the equilibrium level of savings and investment. Use the standard approach for this analysis.

**(4 pt) Equilibrium interest rate increases.**

**(4 pt) Equilibrium level of savings and investment decreases.**

- a) (5 points) In the standard approach, what happens to private saving? To public saving?

**(2.5 pt) Private saving does not change.**

**(2.5 pt) Public saving decreases.**

- b) (8 points) Under the Ricardian version, what impact will an increase in government spending have on the equilibrium interest rate and the equilibrium value of savings and investment?

**(4 pt) Equilibrium interest rate is unchanged.**

**(4 pt) Equilibrium level of savings and investment is unchanged.**

- c) (7 points) Using the Ricardian approach, what happens to private saving? To public saving? To current, or today's consumption?

**(2 pt) Private saving increases.**

**(2pt) Public saving decreases.**

**(3pt) Today's consumption decreases.**

3. Suppose the Federal Reserve lowers the reserve requirement ratio from 20 percent to 10 percent. The commercial banking system currently has \$200 billion in deposits from the households and businesses. Assume the banking system is fully loaned up.

a) (5 points) At the instant that the reserve requirement change is implemented, what is the level of bank reserves?

$$\text{Bank Reserves} = \text{Reserve Requirement Ratio} \times \text{Deposits} = 20\% \times \$200 \text{ billion} = \$40 \text{ billion}$$

b) (4 points) What was the old money multiplier? What is the new money multiplier?

$$\text{Old money multiplier} = 1/0.2 = 5$$

$$\text{New money multiplier} = 1/0.1 = 10$$

c) (5 points) Compute the new maximum level deposits that this level of reserves could support.

$$\text{Max } \Delta \text{ Deposits} = \text{Money multiplier} \times \Delta \text{ Initial Total Reserves} = 10 \times \$40 = \$ 400 \text{ billion}$$

4. Consider a case in which the Federal Reserve sells \$100,000 worth of Treasury securities to Liz. She pays for the securities by writing a check. Assume that prior to Liz's deposit, the banking system was fully loaned up.

- a) (8 points) What is the immediate effect of the transaction between the Fed and Liz on monetary base? On M1?

$$(4 \text{ pt}) \Delta \text{ Monetary base} = \Delta \text{ Currency} + \Delta \text{ Total Reserves} = -\$100,000$$

$$(4 \text{ pt}) \Delta \text{ M1} = \Delta \text{ Currency} + \Delta \text{ Deposits} = -\$100,000$$

- b) (12 points) Suppose the reserve requirement ratio is 20 percent. Write down the equation that determines the maximum impact that this transaction will have on quantity of deposits. Identify the money multiplier in this equation. Compute the maximum impact on deposits, using this equation.

$$(4 \text{ pt}) \text{ Max } \Delta \text{ Deposits} = \text{Money Multiplier} \times \Delta \text{ Initial Total Reserves}$$

$$(4 \text{ pt}) \text{ Money Multiplier} = 1/0.2 = 5$$

$$(4 \text{ pt}) \text{ Max } \Delta \text{ Deposits} = \text{Money Multiplier} \times \Delta \text{ Initial Total Reserves}$$

$$= 5 \times (-\$100,000) = -\$500,000$$

- c) (10 points) After the money process is complete, compute the total effect on monetary base. On M1.

$$(5 \text{ pt}) \Delta \text{ Monetary base} = \Delta \text{ Currency} + \Delta \text{ Total Reserves} = -\$100,000$$

$$(5 \text{ pt}) \Delta \text{ M1} = \Delta \text{ Currency} + \Delta \text{ Total Deposits} = -\$500,000$$

5. (10 points) List the four factors that I used to describe how banks improve outcomes for savers and borrowers.

**(2.5 pt) 1. Matching**

**(2.5 pt) 2. Diversifying**

**(2.5 pt) 3. Assessing risk**

**(2.5 pt) 4. Monitoring**

6. (10 points) In class, we talked about monetary base, M1 and M2. What is included in monetary base? In M1? In M2? How would you characterize the types of household assets that are included in M2, but not in M1?

**(2.5 pt) Monetary base = Currency + Bank Reserves**

**(2.5 pt) M1 = Currency + Demand deposits + Traveler's checks**

**(2.5 pt) M2 = M1 + Certificate of deposits + Saving deposits + Money market mutual fund account (or money market deposit account)**

**(2.5 pt) Assets included in M2 are less liquid. Assets included in M1 are more liquid.**