

Homework 10

Chapter 19

Problem 4

Please put homework in your TA's mailbox before 2pm of next Monday.

5. Portfolio theories of money demand stress the role of money as a store of value. They predict that the demand for money depends on the risk and return on money and alternative assets.
6. Transactions theories of money demand, such as the Baumol–Tobin model, stress the role of money as a medium of exchange. They predict that the demand for money depends positively on expenditure and negatively on the interest rate.
7. Financial innovation has led to the creation of assets with many of the attributes of money. These near moneys make the demand for money less stable, which complicates the conduct of monetary policy.

KEY CONCEPTS

Reserves	Money multiplier	Capital requirement
100-percent-reserve banking	High-powered money	Portfolio theories
Balance sheet	Open-market operations	Dominated asset
Fractional-reserve banking	Reserve requirements	Transactions theories
Financial intermediation	Discount rate	Baumol–Tobin model
Monetary base	Excess reserves	Near money
Reserve–deposit ratio	Bank capital	
Currency–deposit ratio	Leverage	

QUESTIONS FOR REVIEW

1. Explain how banks create money.
2. What are the three ways in which the Federal Reserve can influence the money supply?
3. Why might a banking crisis lead to a fall in the money supply?
4. Explain the difference between portfolio and transactions theories of money demand.
5. According to the Baumol–Tobin model, what determines how often people go to the bank? What does this decision have to do with money demand?
6. In what way does the existence of near money complicate the conduct of monetary policy? How has the Federal Reserve responded to this complication?

PROBLEMS AND APPLICATIONS

1. The money supply fell from 1929 to 1933 because both the currency–deposit ratio and the reserve–deposit ratio increased. Use the model of the money supply and the data in Table 19-1 to answer the following hypothetical questions about this episode.
 - a. What would have happened to the money supply if the currency–deposit ratio had risen but the reserve–deposit ratio had remained the same?

- b. What would have happened to the money supply if the reserve–deposit ratio had risen but the currency–deposit ratio had remained the same?
 - c. Which of the two changes was more responsible for the fall in the money supply?
2. To increase tax revenue, the U.S. government in 1932 imposed a two-cent tax on checks written on deposits in bank accounts. (In today's dollars, this tax was about 25 cents per check.)
 - a. How do you think the check tax affected the currency–deposit ratio? Explain.
 - b. Use the model of the money supply under fractional-reserve banking to discuss how this tax affected the money supply.
 - c. Now use the *IS–LM* model to discuss the impact of this tax on the economy. Was the check tax a good policy to implement in the middle of the Great Depression?
3. Give an example of a bank balance sheet with a leverage ratio of 10. If the value of the bank's assets rises by 5 percent, what happens to the value of the owners' equity in this bank? How large a decline in the value of bank assets would it take to reduce this bank's capital to zero?
4. Suppose that an epidemic of street crime sweeps the country, making it more likely that your wallet will be stolen. Using the Baumol–Tobin model, explain (in words, not equations) how this crime wave will affect the optimal frequency of trips to the bank and the demand for money.
5. Let's see what the Baumol–Tobin model says about how often you should go to the bank to withdraw cash.
 - a. How much do you buy per year with currency (as opposed to checks or credit cards)? This is your value of Y .
 - b. How long does it take you to go to the bank? What is your hourly wage? Use these two figures to compute your value of F .
 - c. What interest rate do you earn on the money you leave in your bank account? This is your value of i . (Be sure to write i in decimal form—that is, 6 percent should be expressed 0.06.)
 - d. According to the Baumol–Tobin model, how many times should you go to the bank each year, and how much should you withdraw each time?
 - e. In practice, how often do you go to the bank, and how much do you withdraw?
 - f. Compare the predictions of the Baumol–Tobin model to your behavior. Does the model describe how you actually behave? If not, why not? How would you change the model to make it a better description of your behavior?
6. In Chapter 4, we defined the velocity of money as the ratio of nominal expenditure to the quantity of money. Let's now use the Baumol–Tobin model to examine what determines velocity.
 - a. Recalling that average money holdings equal $Y/(2N)$, write velocity as a function of the number of trips to the bank N . Explain your result.
 - b. Use the formula for the optimal number of trips to express velocity as a function of expenditure Y , the interest rate i , and the cost of a trip to the bank F .
 - c. What happens to velocity when the interest rate rises? Explain.
 - d. What happens to velocity when the price level rises? Explain.
 - e. As the economy grows, what should happen to the velocity of money? (*Hint:* Think about how economic growth will influence Y and F .)
 - f. Suppose now that the number of trips to the bank is fixed rather than discretionary. What does this assumption imply about velocity?