

ECON 4100: Monetary Economics
Homework 2
Lastrapes
Fall 2008

1. Use the 'loanable funds' model of the market for credit to predict the effect on real interest rates of the following events. Provide a brief explanation.
 - a. An increase in the perceived risk of financial securities.
 - b. An increase in the marginal product of capital.
 - c. Falling stock prices.
 - d. A decrease in expected inflation.

2. Suppose that on January 1, 2009 the annualized yield on 3-month t-bills is 1%, and that bond markets expect the 3-month yield on April 1 to be 2%, on July 1 to be 3%, and on October 1 to be 4%.
 - a. If the expectations hypothesis of the term structure of interest rates is valid, what is the yield-to-maturity on January 1, 2009 of 6-month t-bills and of 12-month t-bills? Plot the yield curve as of this date.
 - b. Suppose also that the observed yield-to-maturity on 2-year treasury securities is 4% on January 1, 2009. What does the expectations hypothesis imply about the market's expectation for the yield-to-maturity on one year treasury bills in 2010?

3. Suppose that the US, non-bank public holds \$5,000 in currency (Federal Reserve Notes), banks hold \$2,000 in reserves (of which \$500 is on deposit with the Fed), and total checkable deposits in the banking system equal \$50,000. Determine: a) the US monetary base; b) currency held by banks; c) total Federal Reserve Notes outstanding; and d) M1.

4. Assume that in aggregate banks act to ensure that their desired reserve ratio (q) is 10%, and that the public's desired currency ratio (k) is 75%. For each of the events below, determine the effect on the US money stock ($M=C+D$) and on total bank loans (L) as predicted by the multiplier model.
 - a. The FOMC directs the trading desk at the N.Y. Fed to sell \$1,000,000 in government securities.
 - b. The Federal Reserve Bank of Atlanta makes a discount loan to Bank of America of \$500,000, at the primary credit rate of 2.25%.
 - c. The Fed buys UK government bonds worth £500,000 when the exchange rate is \$1.50/£.
 - d. U.S. Treasury deposits at the Fed rise by \$1.5 million, and the Fed responds by instructing the trading desk to buy \$1.5 million in treasury securities.
 - e. The government's budget deficit rises by \$100 billion.

5. Explain how each of the following would likely affect the nation's money supply, assuming the monetary base remains unchanged.
 - a. An increase in market interest rates on bank loans.
 - b. Marijuana is legalized.
 - c. Bankers perceive an increase in the risk on loans (to businesses and to other banks).
 - d. The government eliminates the FDIC.
6. During the current financial crisis of 2008, what has been the significance of Section 13 (3) of the Federal Reserve Act?
7. Your local bank computes that during its most recent reserve computation period it had an average daily balance of \$150 million in checking accounts and \$5 million in cash. Average daily balances of deposits at the Fed during the corresponding maintenance period was \$7 million. Did the bank hold sufficient reserves to satisfy current Fed reserve requirements?
8. Explain the differences in how the Fed implements its discount lending policies through its primary credit facility and its term auction facility. Which one of these facilities gives the Fed more precise control over the *amount* of lending that takes place, and why?
9. Assume that the FOMC uses the federal funds rate as its day-to-day operating target, there is no discount borrowing, and the Fed pays no interest on bank reserves. What is the appropriate open-market operation (purchase or sale), if any, for the FOMC to maintain its target in the face of the following shocks. Why?
 - a. There is an increase in checking account liabilities in the banking system.
 - b. The desired reserve ratio of the banking system falls
 - c. Stability in the economy leads to an increase in the supply of loans in the federal funds market.
 - d. The public's desired currency ratio rises.
10. Draw a graph of the market for bank reserves assuming the following: a) the Fed's primary credit rate is 2%; b) the interest rate paid by the Fed on bank reserves is 1%; c) non-borrowed reserves (NBR) are \$500 billion; d) borrowed reserves (BR) are zero; and e) the equilibrium (effective) federal funds rate is 1.5%. On the graph, show what would cause borrowed reserves to rise by \$100 billion, and the equilibrium federal funds rate to rise to the primary credit rate of 2%. From this new position, what would happen to borrowed reserves and the federal funds rate if NBR falls.
11. Assume that the Fed's current federal funds rate target is 3%. The Fed estimates that while output is equal to its target level, the currently observed inflation rate of 3% exceeds its target of 2%. If the real interest rate at full employment is 1%, how should the Fed change its fed funds target if it follows Taylor's Rule as a guide to implementing monetary policy strategy?

12. Using the fundamental supply and demand model of exchange rates, predict how the following events would likely affect the equilibrium \$/€ exchange rate (all other things constant).
 - a. An increase in the price level in Europe.
 - b. An increase in market interest rates in Europe.
 - c. A proportional increase in the price levels in both the US and Europe.
 - d. An increase in British interest rates.

13. Distinguish between the concepts of ‘purchasing power parity’ and ‘interest rate parity’ and how they help explain fluctuations in exchange rates over time.

14. Until July 2005, China actively pegged its currency, the Renminbi yuan, to the US dollar; thereafter, the yuan floated against the dollar. Suppose that US demand for goods produced in China increased in 2004. What action would the central bank of China (the *PBC*) have taken to ensure that the yuan would not appreciate relative to the dollar? How has the *PBC* presumably responded to such a shock since July 2005?

15. According to the ‘quantity theory of money,’ what happens when the growth rate of money increases by 5% under a fiat money system? What are the key assumptions underlying this result? Do the predictions of the theory seem to be supported by the data?