

Problem Set 5

Due in lecture on **Wednesday, December 13th**. No late submissions will be accepted. Make sure your name is on your problem set, as well as the name of your (*official*) TA.

1. “In a world with currency holdings and where banks hold excess reserves, if reserve requirements on checkable deposits were set at zero, the amount of multiple deposit expansion would go on indefinitely.” Is this statement true, false, or uncertain? Explain.
2. Why might the procyclical behavior of interest rates (rising during business cycle expansions and falling during recessions) lead to procyclical movements in the money supply?
3. “The only way that the Fed can affect the level of borrowed reserves is by adjusting the discount rate.” Is this statement true, false, or uncertain? Explain your answer, using graphs if helpful.
4. If the Fed has an interest-rate target, why will an increase in the demand for reserves lead to a rise in the money supply?
5. Suppose the Fed targets the Fed Funds rate by using this rule:

$$i_{ff}^* = \pi + i_{r,ff}^* + 0.5 \times (\pi - \pi^*) + 0.5 \times (y - y^*)$$

Where $i_{r,ff}^*$ is the equilibrium real Fed Funds rate, π is the inflation rate, π^* is the target inflation rate, y is log real GDP, and y^* is log potential GDP. Hence, $(\pi - \pi^*)$ is the inflation gap and $(y - y^*)$ is the output gap. If the inflation gap rises from 0 to 2 percent (0.02), but the output gap falls by 1 percent (0.01), what should happen to the target Fed Funds rate? Show your work.

6. What are the key advantages and disadvantages of the monetary strategy used in the United States under Alan Greenspan, in which the nominal anchor is only implicit?
7. Using data from the 2006 *Economic Report of the President*.

7.1 Calculate velocity for the last five complete years.

7.2 Is velocity constant?

7.3 What implications does your finding have for the idea of targeting monetary aggregates?

8. Question 8 refers to the material in Chapters 20-21 (8/e) [Chapters 23-24 7/e], and/or Economics 302. Show the effects of the following in an IS-LM diagram.

8.1 Decrease in money supply.

8.2 Increase in autonomous consumption (“ a ” in the consumption function).

8.3 Increase in lump sum taxes.

8.4 Increase in the autonomous component of imports (in other words, a decrease in the autonomous component of *net exports*).

9. Consider the model in Chapter 22 (8/e) [Chapter 25 7/e]:

9.1 Using an AD-AS diagram, carefully indicating the curve shifts, show what happens in the short run when housing investment confidence decreases (say in period 1).

9.2 On another graph, indicate what happens over time to the interest rate, the price level and output as the economy moves to medium run equilibrium.

9.3 Explain why the economy takes this path (referring to the graphs, and equations). Indicate where output and the price level end up.

9.4 Suppose in period 1, the Fed increases the money supply to counter the investment decline. What effect would this have in period 1? In subsequent periods (Use a separate graph)?