

Introduction to Macroeconomics · M5 · 2013-14

Problem set 2

1. Properties of money. Find some good or financial asset that: (i) could be medium of exchange and store of value but not, or hardly, unit of account; (ii) could be medium of exchange but neither store of value nor unit of account; (iii) could be store of value and unit of account but not medium of exchange; and (iv) nor medium of exchange, nor store of value, nor unit of account.

2. Reserve ratio. Let $M_0 = 1,000$, $M_1 = 4,000$, and $r = 0.1$. (i) What change in the liquidity ratio l would neutralize the effect on M_1 of a 10% fall in M_0 ? Let $M_0 = 1,000$, $M_1 = 4,000$, and $l = 0.1$. (ii) What change in the reserve ratio r would neutralize the effect on M_0 of a 10% increase in M_0 ?

3. Money multiplier. Using derivatives, find the effect on the money multiplier of a rise in r and a fall in l .

4. Money multiplier formula. The money multiplier is 2. Bank reserves are $R = 100$. Sight deposits are $D = 1,000$. Ascertain the currency E held by the public.

5. M_0 , M_1 . (i) Explain two differences between M_0 and M_1 . (ii) Can M_0 be greater than M_1 ? And smaller than M_1 ? And equal to M_1 ?

6. M_0 , M_1 . Let $M_1 = 4,000$, $mm = 2$, and $r = 0.3$. (i) Find M_0 and l . (ii) Find M_1 if, given the results in (i), r dropped to zero. Explain the mechanism that produces the change in M_1 (reason what happens to loans, expenditure, revenues, deposits, and M_1 when r becomes 0).

7. Money multiplier. Find the money multiplier if: (i) the liquidity ratio is 0.1, the monetary base is 500, and the money stock is 1,000; (ii) the liquidity ratio is 0.1, the monetary base is 550, and the currency E held by the public is 100.

8. M_1 . An individual finds €1 million and deposits the amount on a bank. Explain how this decision is likely to affect M_0 and M_1 .

9. Monetary aggregates. The monetary base is €37,000, bank reserves amount to €12,000, and the liquidity ratio is 1/10. (i) Calculate (to two decimal places only) the currency held by the public, the money stock M_1 , deposits, the reserve ratio, and the money multiplier. (ii) If the aim of the central bank is to increase the money stock by 10%, which change in the reserve ratio would accomplish that goal? (iii) In the initial situation, what is the effect on M_1 of a €2,000 increase in M_0 ?

10. M_0 , M_1 , M_2 . Explain which of the following situations can occur and which cannot occur: (i) M_0 rises and, at the same time, M_1 drops; (ii) M_0 falls and, at the same time, M_2 rises.

11. Money multiplier. Find the money multiplier if the liquidity ratio is 0.1, the monetary base is 550, and the currency the public holds is 100.

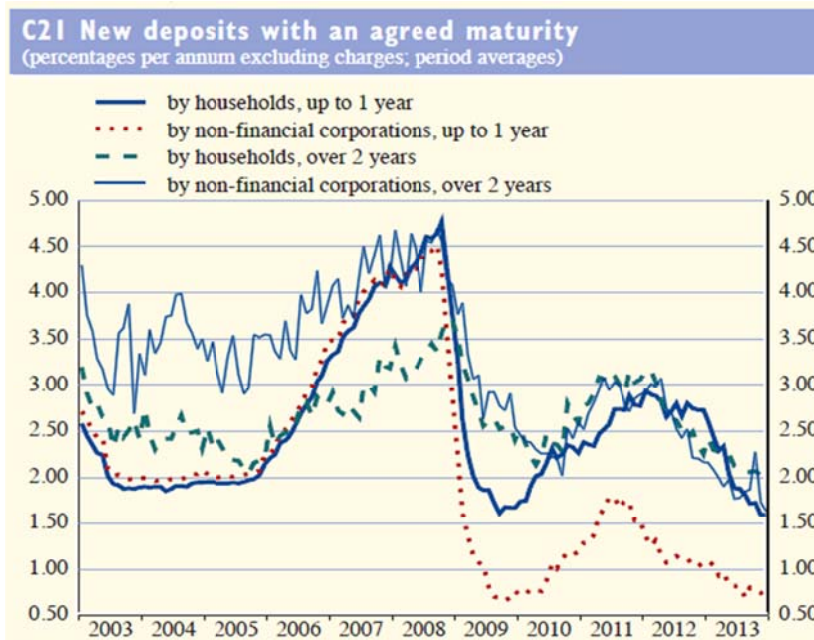
12. Cash and deposits. Determine the amount of cash (E) and deposits (D) if the money stock M_1 equals 900 and the liquidity ratio is 1/2.

13. Money creation process. Explain how an increase in unemployment is likely to affect the money multiplier process.

14. M_0 . Find the monetary base if the money multiplier is 3/2, reserve and liquidity ratios coincide, and the currency the public holds is 150.

15. Money creation process. Explain how the M_1 creation process is likely to be affected by the creation of a tax on bank deposits that has to be paid by depositors.

16. Money creation process. In the two charts next, consider the period 2012 – 2013. (i) Explain how the evolution of new deposits in chart C21 presumably affected the money multiplier. (ii) Is this evolution consistent with the dynamics of M_1 shown in chart C1?



Source: ECB Monthly Bulletin, February 2014, S43 and S12
<http://www.ecb.europa.eu/pub/pdf/mobu/mb201402en.pdf>

17. **Currency.** According to the chart in slide Money – 40, would the removal of all euro coins affect significantly: (i) the currency held by the public?; (ii) M1?

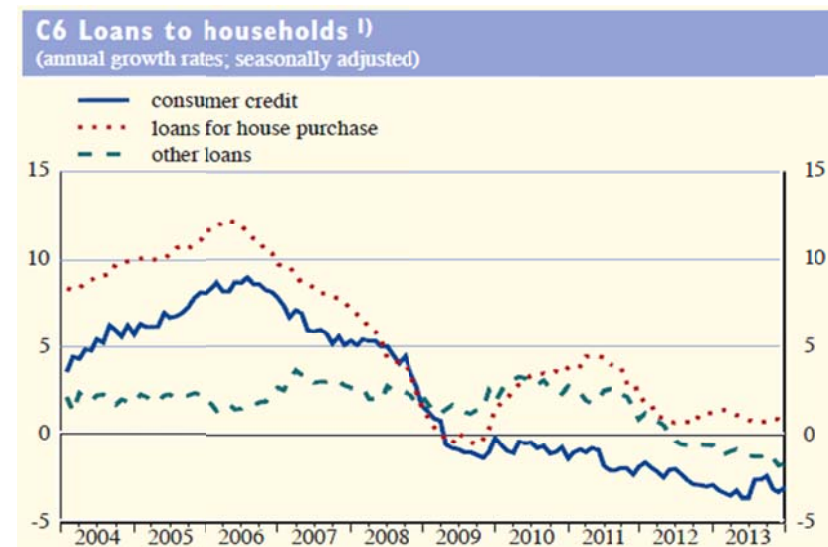
18. **Currency and liquidity ratio.** With $M1 = 1,000$, $M0 = 500$, reserve ratio equal to $3/8$, and deposits $D = 800$, find the liquidity ratio l and the currency E held by the public.

19. **Money multiplier process.** Considering the money multiplier process, indicate three events that could lower the money multiplier.

20. **M0, M1.** Explain a common feature and two differences between the monetary base and the money stock.

21. **Money stock.** How is the money stock likely to be affected by an increase in the number of people that do not repay bank loans?

22. **Money stock.** Along the whole period represented in the next chart, has the creation of money stock rather accelerated or decelerated?



Source: ECB Monthly Bulletin, February 2014, S14