Past-paper walk-through

Money Growth and Inflation ▪ 5.3

eXercise

Questions in this set

- 2022 Set 1 Q2
- 2017 Q2

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- // separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = "or words to that effect" – the wording need not match.

Question 2

2022 Set 1 ▪ Q2

Assume that commercial banks must hold a minimum of 20% of their deposits as reserves. Now suppose that the central bank of the country sells $100{,}000$ of government bonds to commercial banks.

(a) Calculate the maximum change and state the direction of change in the money supply as a result of the central bank bond sale. Show your work.

(b) Draw a correctly labeled graph of the money market and show the effect of the change in the money supply identified in part (a) on the nominal interest rate.

(c) Given the change in the money supply in part (a), if the velocity of money is constant, what will happen to the nominal gross domestic product? Explain.

(d) Based on the change in the nominal gross domestic product in part (c), what happens to the price level if the real gross domestic product is constant?

Solution 2

(a)

Mark scheme

- Maximum change in money supply = bond sale × money multiplier = −\$100,000 × (1/0.2) = −\$100,000 × 5 = −\$500,000 (a decrease of \$500,000). Show work: the money (deposit) multiplier = 1/required reserve ratio = 1/0.2 = 5. 1 point for the correct answer (a decrease of \$500,000) with work shown and direction (decrease) stated.

Solution 2

(b)

Mark scheme

- Draw the money market: vertical money supply MS_1, downward-sloping money demand MD_1 (axes: Nominal Interest Rate vertical, Quantity of Money horizontal), equilibrium at i_1, Q_1 — 1 point. Shift MS_1 leftward to MS_2 (reflecting the decrease in the money supply from part a), producing a new equilibrium at a higher nominal interest rate i_2 ($i_2 > i_1$) and lower quantity Q_2 — 1 point. Total 2 points.

Solution 2

(c)

Mark scheme

- Nominal gross domestic product (nominal GDP = PY) will decrease. Explanation: by the quantity theory of money, MV = PY; holding velocity (V) constant, a decrease in the money supply (M) causes nominal GDP (PY) to decrease proportionally. 1 point for the correct direction (decrease) with this explanation.

Solution 2

(d)

Mark scheme

- The price level decreases. Since nominal GDP (PY) decreased (from part c) and real GDP (Y) is held constant, the price level (P) must fall for the product PY to fall. 1 point for correctly stating that the price level decreases.

Question 2

2017 ▪ Q2

Assume that an economy is in long-run equilibrium. Assume that consumers wish to hold less money because they use credit cards more frequently to purchase goods and services than cash.

(a) Draw a correctly labeled graph of the money market and show the effect of the reduced holdings of money on the equilibrium nominal interest rate in the short run.

(b)(i) Based on the change in the interest rate in part (a), what will happen to each of the following in the short run?

Prices of previously issued bonds

(b)(ii) The price level and real income. Explain.

(c) With a constant money supply, based on your answer to part b(ii), will the velocity of money increase, decrease, or remain the same, or is the change indeterminate?

Question 2

(d) If the central bank wishes to reverse the change in the interest rate identified in part (a), what open market operation would it use?

Solution 2

(a)

Mark scheme

- Graph axes: nominal interest rate vertical, quantity of money (M) horizontal. Draw a vertical money supply (MS) curve and a downward-sloping money demand curve (correctly labeled) (1 point). Show money demand shifting leftward from MD1 to MD2 (due to reduced money holdings), with the equilibrium nominal interest rate falling from r1 to r2 (1 point).

Solution 2

(b)(i)

Mark scheme

- The price of previously issued bonds will increase. Bond prices and interest rates move inversely: as the nominal interest rate falls (from part a), existing bonds with a fixed coupon become relatively more attractive, so their price rises.

Solution 2

(b)(ii)

Mark scheme

- Both the price level and real income (real GDP) will increase. Explanation: the lower nominal interest rate (from part a) increases interest-sensitive spending — consumption, investment, and/or net exports — which increases aggregate demand, raising both the price level and real income/real GDP.

Solution 2

(c)

Mark scheme

- The velocity of money will increase. Using the equation of exchange $MV = PY$: with the money supply (M) held constant while the price level and real income (PY) both increase (from part b(ii)), velocity (V) must rise to keep the equation balanced.

Solution 2

(d)

Mark scheme

- The central bank would sell bonds (conduct an open market sale). Selling bonds decreases the money supply, which reverses the earlier fall in the interest rate by pushing the nominal interest rate back up.