

The following questions are taken from past challenges. The format is 4-5 short answer and 2-3 longer questions. The formulas provided below will also be provided on the challenge. All questions come from the notes. Also review the first homework, the articles handed out in class, and this review sheet. Textbook chapters 1, 3, 8, 15, and pages 461-88, 110-118, 150-159, and 307-135 are optional, supplementary material.

The following formulas may be useful.

Inflation and Interest Rates

$$\text{GDP Deflator} = \frac{P_{1,t}Q_{1,t} + P_{2,t}Q_{2,t} + \dots + P_{n,t}Q_{n,t}}{P_{1,b}Q_{1,t} + P_{2,b}Q_{2,t} + \dots + P_{n,b}Q_{n,t}} \cdot 100,$$

$$\text{CPI} = \frac{P_{1,t}Q_{1,b} + P_{2,t}Q_{2,b} + \dots + P_{n,t}Q_{n,b}}{P_{1,b}Q_{1,b} + P_{2,b}Q_{2,b} + \dots + P_{n,b}Q_{n,b}} \cdot 100, \quad \pi = \frac{P_{t+1} - P_t}{P_t}, \quad R_t = r_t + \pi_t$$

Money Supply

$$M = (cr + 1)D, \quad H = (cr + rd)D, \quad cr = \frac{C}{D}, \quad rd = \frac{TR}{D},$$

$$M = Hk(R), \quad \Delta M = \Delta Hk(R), \quad k(R) = \frac{cr + 1}{cr + rrr + e(R)}$$

$$\frac{M}{P} = \frac{H}{P}k(R), \quad TR = NBR + BR = ER + RR, \quad rd = rrr + e(R)$$

$$M2 = C + D + S = (cr + 1 + sr)D, \quad M2 = H \cdot k_{M2}(R), \quad k_{M2}(R) = \frac{cr + 1 + sr}{cr + rd}.$$

Money Demand

$$\frac{M}{P} = \sqrt{\frac{\delta C}{2R}}, \quad n = \sqrt{\frac{RC}{2\delta}}, \quad MV = PC, \quad V = \sqrt{\frac{2RC}{\delta}}, \quad MD = a - b\pi_{t+1}^e$$

Short answer questions (1-2 sentences)

Question 1

Explain why households care about the nominal interest rate, instead of the real interest rate, when deciding how much excess reserves to hold.

Question 2

Consider an increase in consumption. According to the BT model, explain intuitively what happens to:

- a. The number of withdraws.
- b. Money Demand.
- c. Velocity.

Question 3

Explain why inflationary expectations are self-fulfilling in the Cagan model.

Longer Questions

Question 4.

Graph the money market. Show on the graph the effect of an increase in the currency to deposit ratio. Explain what happens to:

- a. The equilibrium interest rate.
- b. The supply of real money balances.
- c. The number of withdraws per period.
- d. Excess reserves.
- e. Consumption velocity.

Question 5.

Graph the money market using the Cagan model of money demand. Suppose an increase in inflationary expectations.

- a. Explain what happens to interest rates, inflation, and money demand.
- b. Are inflationary expectations self-fulfilling?

Question 6.

Suppose the following version of the Cagan model:

$$MD = 2 - 2\pi_{t+1}^e \tag{1}$$

$$\pi_{t+1}^e = \frac{1}{4}\pi_t \text{ (inflation expectations)} \tag{2}$$

$$\pi_{t+1} = 2.5 - MD \text{ (inflation response)} \tag{3}$$

period	inflation	expectations	MD
0	1.8	1.8	
1			
2			
3			
4			
5			

Now answer the following questions:

- a. Are inflationary expectations self-fulfilling?
- b. Are inflationary expectations self-generating?
- c. Are inflationary expectations rational? Explain.
- d. Assume consumption is constant. What is happening to consumption velocity? Explain.