



Answer Book

Instructions :

I. Write your answers on the **RIGHT-HAND** page. Use the left-hand page only for rough work. Any work that appears on the left-hand page will **NOT** be marked.

2. Begin **EACH** question on a **NEW** page. Write down the question number at the top of each page.

3. No supplementary sheets may be submitted, unless allowed by the examiner.

4. No part of this answer book is to be taken away from the examination.

Enter the question numbers below in the **SAME ORDER** as you have answered the questions :

Question No.	For use by the examiner	
	Marks	
Total marks	83	

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As members of the University community, students have the responsibility to help maintain the academic reputation of HKUST in its academic endeavors.

Sanctions will be imposed on students, if they are found to have violated the regulations governing academic integrity and honesty

I confirm that I have answered the questions using only materials specifically approved for use in this examination, that all the answers are my own work, and that I have not received any assistance during the examination.

Student's Signature :

Ch.

No. of answer books used : _____

Checked by Yang Lu.

MC

1. ~~ED~~ 2. D 3. ~~A~~ 4. D 5. C

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Short Questions

Q6

(a) $Z = C + I + G$, For equilibrium output $Y = Z$,

$$Y = C_0 + C_1 Y_0 + b_0 + b_1 Y - b_2 i + G$$

$$= C_0 + C_1 (Y - T) + b_0 + b_1 Y - b_2 i + G$$

$$= C_0 + C_1 (Y - T_0 - t_1 Y) + b_0 + b_1 Y - b_2 i + G$$

$$= C_0 + C_1 (1 - t_1) Y - C_1 T_0 + b_0 + b_1 Y - b_2 i + G$$

$$[1 - C_1 (1 - t_1) - b_1] Y = C_0 - C_1 T_0 + b_0 - b_2 i + G$$

$$Y = \frac{C_0 - C_1 T_0 + b_0 - b_2 i + G}{1 - C_1 - b_1 + C_1 t_1}$$

$$T = T_0 + t_1 Y$$

$$= T_0 + t_1 \left[\frac{C_0 - C_1 T_0 + b_0 - b_2 i + G}{1 - C_1 - b_1 + C_1 t_1} \right]$$

$$= \frac{T_0 - T_0 C_1 - T_0 b_1 + T_0 C_1 t_1 + t_1 C_0 - t_1 C_1 T_0 + t_1 b_0 - t_1 b_2 i + t_1 G}{1 - C_1 - b_1 + C_1 t_1}$$

$$= \frac{T_0 (1 - C_1 - b_1) + t_1 (C_0 + b_0 - b_2 i + G)}{1 - C_1 - b_1 + C_1 t_1}$$

$$= \frac{T_0 + t_1 C_0 - t_1 C_1 + t_1 b_0 - t_1 b_1 - t_1 b_2 i + t_1 G}{1 - C_1 - b_1 + C_1 t_1}$$

(b)

T decreases when b_0 decreases

To maintain a balanced budget $G = T$,
the government will lower G if T drops

~~However, if b_0 decreases then T decreases, which~~
 (part (a))

For total output Y , when b_0 drops Y decreases.

However, the decreased G by government further intensifies the effect of decreasing Y , which makes output decrease even more.

Q6 (c) Private Saving $S = Y - T - C$

$$= Y - T - C_0 - C_1(Y - T)$$

$$= (1 - C_1)(Y - T) - C_0$$

T drops because of b_0 's drop.

Y drops in the factors of both the decreases of b_0 and G ,

so Y drops more than T. Private saving decreases.

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Q7.

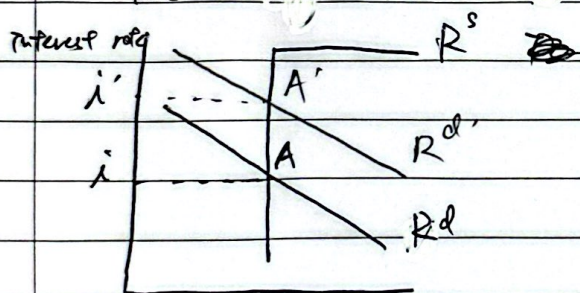
(a) $Z = C + I + G$, for equilibrium output $Y = Z$
 $Y = C + I + G$
 $= 0.5 + 0.2(Y - 1) + 0.2 + 0.3Y - 2.5(\bar{i} + 0.05) + 1$
 $= 1.375 + 0.5Y - 2.5\bar{i}$
 $0.5Y = 1.375 - 2.5\bar{i}$
 $Y = 2.75 - 5\bar{i}$ //

(b) $\frac{M^d}{P} = Y(0.7 - 4i) = (2.75 - 5\bar{i})(0.7 - 4\bar{i})$ by (a)
 $\frac{M^d}{2} = (2.75 - 5(0.05))(0.7 - 4(0.05))$
 $M^d = 2.5$

$H^d = [c + \theta(1-c)] M^d$
 $= [0.2 + (0.25)(1-0.2)] (2.5) = 1$ // 0

∴ Monetary base that can achieve the interest rate target is 1 //

(c) When the crisis leads to a higher reserve ratio, the reserve demand R^d increases, interest rate i increases,



If the central bank wants to restore to 5%,

$H^d = [0.2 + (0.3)(1-0.2)] (2.5) = 1.1$

1.1 will be the new equilibrium ~~monetary~~ monetary base.

Q7

(d) New $Y = 0.5 + 0.2(Y-1) + 0.2 + 0.3Y - 2.5(0.05 + 0.15) + 1$

$$0.5Y = 1, \quad Y = 2$$

$$\frac{M^d}{2} = (2)(0.7 - 4(0.05))$$

$$M^d = 2$$

$$M^d = [0.2 + (0.3)(1-0.2)](2) = 0.88$$

\therefore New monetary base = 0.88

Question 8

(a) Current price for the 2-year bond

$$= 100 \left(\frac{1}{1+0.04+0.05} \right) \left(\frac{1}{1+0.03} \right) \approx 89.071$$

(b) ~~Price~~ Current price for the 3-year bond 20

$$= 100 \left(\frac{1}{1+0.04+0.05} \right) \left(\frac{1}{1+0.03+0.05} \right) \left(\frac{1}{1+0.02} \right) \\ \approx 83.282$$

(c) Current Yield = $\frac{100 - 83.282}{83.282} \times 100\%$
 $= 20.074\%$