

# Fiscal & Financial System in Japan A / International Finance

Fall 2013

Answers for Final

Dec 20, 2013

## Multiple-Choice Questions

1. (b)
2. (a)
3. (a)
4. (d)
5. (c)
6. (b)
7. (e)
8. (b)

## Arithmetic/Essay Questions

### 1. Interest Rates

The interest rate of this bond is given by the following equation.

$$100,000 = \frac{1,000}{1+i} + \frac{1,000}{(1+i)^2} + \frac{1,000 + 102,000}{(1+i)^3} \quad (1)$$

All we want to know is whether the  $i$  is higher or lower than the interest rate offered by bank deposits, 0.02. Then, substitute 0.02 for  $i$  and evaluate the right hand side.

$$\begin{aligned} \frac{1,000}{1+0.02} + \frac{1,000}{(1+0.02)^2} + \frac{1,000 + 102,000}{(1+0.02)^3} &= \frac{1,000}{1.02} + \frac{1,000}{1.0404} + \frac{1,000 + 102,000}{1.061208} \\ &\approx 981 + 962 + 97,060 < 100,000 \end{aligned}$$

Last inequality implies that the  $i$  should be lower in order to satisfy the equation (1). Therefore, the interest rate of this bond is lower than 0.02, and you should deposit your money in a commercial bank.

### 2. Current Account

See the slide #16, Lecture 8.

First, state that a country's current account is the difference between the amount of goods produced and the amount of goods used. Then, show that when a country is hit by a temporary fall in output, it can cushion the fall in consumption and investment by running a current account deficit and using more goods than it produces. Show also that after the production recovers, the country has to have a current account surplus and use less than it produces, paying back the debt in hard times.

### 3. DD-AA Model

- (a) In the short run, a rise in the dollar interest rate raises the expected return on dollar denominated asset. People try to replace all of their yen assets with dollar assets, pushing up the value of the dollar in the FX market. With the expected future yen/dollar exchange rate and yen interest rate, an appreciation of the dollar lowers the expected return on dollar asset. Finally, the exchange rate is such that the expected returns on dollar and yen assets are equal, and the market is in equilibrium.

- (b) A rise in the dollar interest rate shifts up the AA schedule, raising equilibrium GDP and the yen/dollar exchange rate.

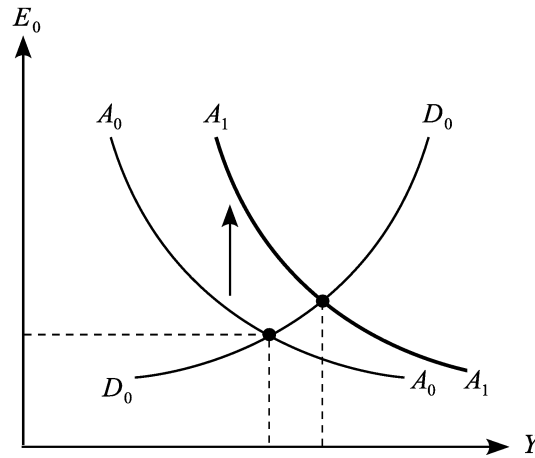


图 1:

- (c) The exchange rate changes greater in the short term than in the medium term. As the answer for (a) shows, the yen depreciates in the short term. But in the medium term, the depreciation of the yen raises aggregate demand for Japan's output and raises Japan's output and income. This increase in income raises the money demand in the money market and raises the yen interest rate. This rise in the yen interest rate causes the yen to appreciate in the FX market, offsetting part of the initial depreciation. Therefore, the yen depreciates greater in the short term than in the medium term. (The short-term depreciation is not *completely* offset, because, as the DD-AA diagram shows, the yen depreciates even in the medium term.)
- (d) Denote output, consumption, investment, government purchases, and current account at the initial equilibrium by  $Y$ ,  $C$ ,  $I$ ,  $G$ , and  $CA$ . Then,

$$Y = C + I + G + CA.$$

At a new equilibrium after a rise in the dollar interest rate, we have  $Y'$ ,  $C'$ , and  $CA'$ .  $I$  and  $G$  are constant because they are not affected by changes in  $Y$ ,  $i$ ,  $E_0$ . Then,

$$Y' = C' + I + G + CA'.$$

It's clear that output/income and consumption increases, and we want to know a change in the current account. Because the increase in consumption is smaller than the increase in income/output (all of the income increase is not spent),  $CA$  must also increase in order for the identity to hold.