International finance
Solution to question 2 problem set 2

2. Assume for simplicity $B_0 = 0$ (the same result goes through with $B_0 \neq 0$). Balanced current account means $CA_1 = 0$ or $S_1 = B_1 = Y_1 - C_1 = 0$ and $CA_2 = Y_2 - C_2$.

   Since the Israel economy is open to the rest of the world, for $CA_1 = 0$ the intertemporal optimality condition for consumption

   $$\frac{C_2}{C_1} = \beta(1 + r) \tag{1}$$

   must be satisfied at $C_1 = Y_2$ and $C_2 = Y_2$; i.e. the autarky interest rate (MRS at the endowment point) equals the world one.

   Denote by $Y_1' < Y_1$ the new, lower, level of first-period income. Since Y_2 is unchanged, (1) is no longer satisfied at the original endowment point. C_1 has fallen relative to C_2 at the original endowment point; i.e. the LHS of (1) increases. Since C_1 falls at the original endowment point, its marginal utility goes up. But optimality calls for the ratio of marginal utilities (and of consumption) in (1) to stay constant. This requires C_1 to exceed Y_1', the country runs a current account deficit in the first period to keep the ratio C_2/C_1 constant.

   Alternatively, the autarky interest rate satisfies

   $$MRS^A = \frac{\beta Y_1}{Y_2} = \frac{1}{1 + r^A} = \frac{1}{1 + r}. \tag{2}$$

   $Y_1' < Y_1$ implies

   $$\frac{1}{1 + r} = \frac{\beta Y_1}{Y_2} > \frac{\beta Y_1'}{Y_2} = \frac{1}{1 + (r^A)'} \tag{3}$$

   or $(r^A)' > r$. After the shock, the country borrows at the world interest rate, since the latter is lower than the autarky one.