International economics (2020–2021)
Final exam

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26 January 2021, 9.00

Surname: _____

First name: _____

ID or passport number: _____

Group: _____

Question	Points	Obtained
1	8	
2	8	
3	8	
4	8	
5	8	
Total	40	

Instructions

The exam consists of **five questions.**

In total, it is possible to obtain up to **40 points**.

Duration of exam: **1 hour** (= 1.5 minutes per point or 12 minutes per question).

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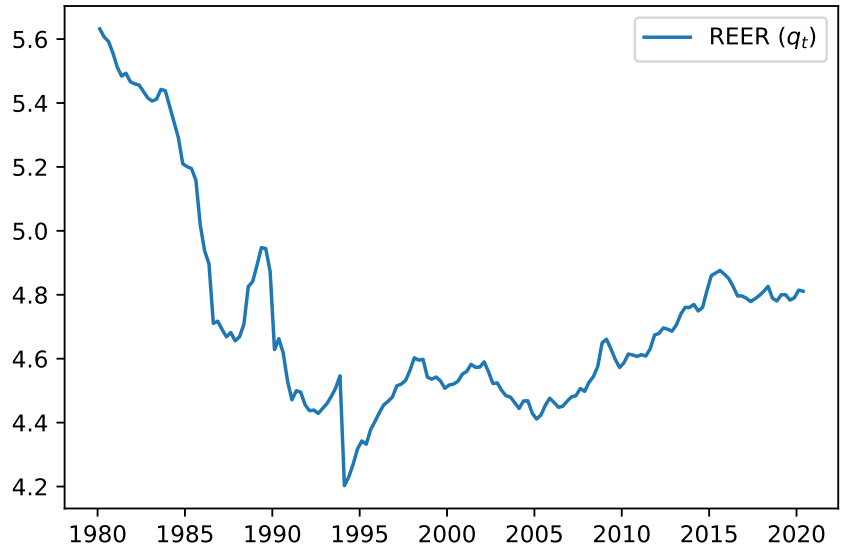

Figure 1: Real effective exchange rate of China. Source: International Financial Statistics (IMF).

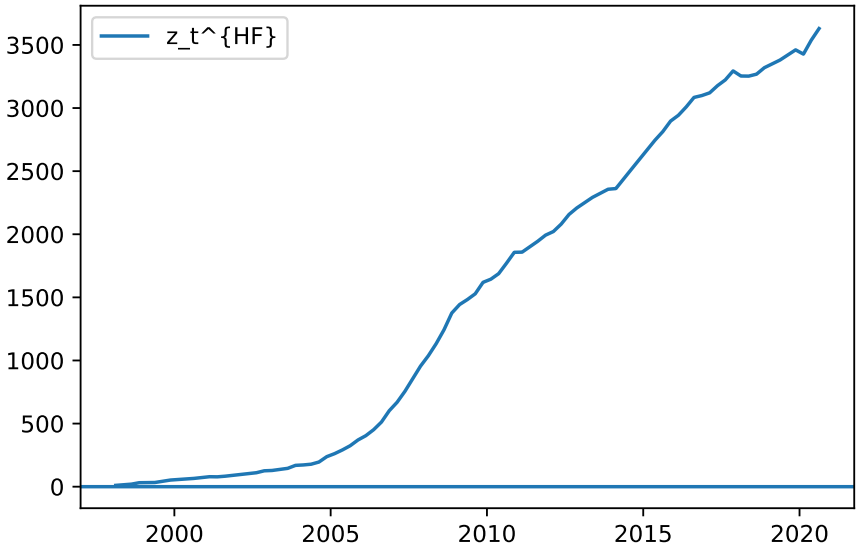

Figure 2: Net international investment position of China. Source: International Financial Statistics (IMF).

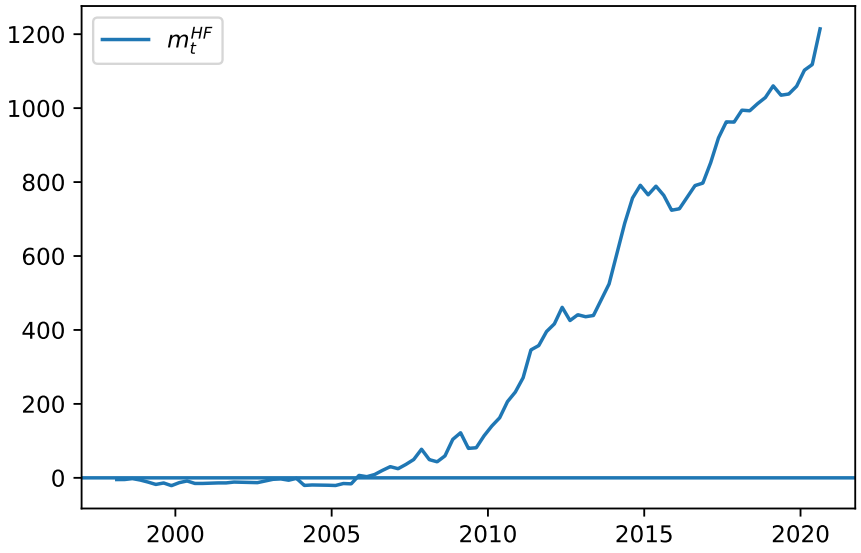

Figure 3: Cumulative net money inflows of China, in billions of US dollars. Source: International Financial Statistics (IMF).

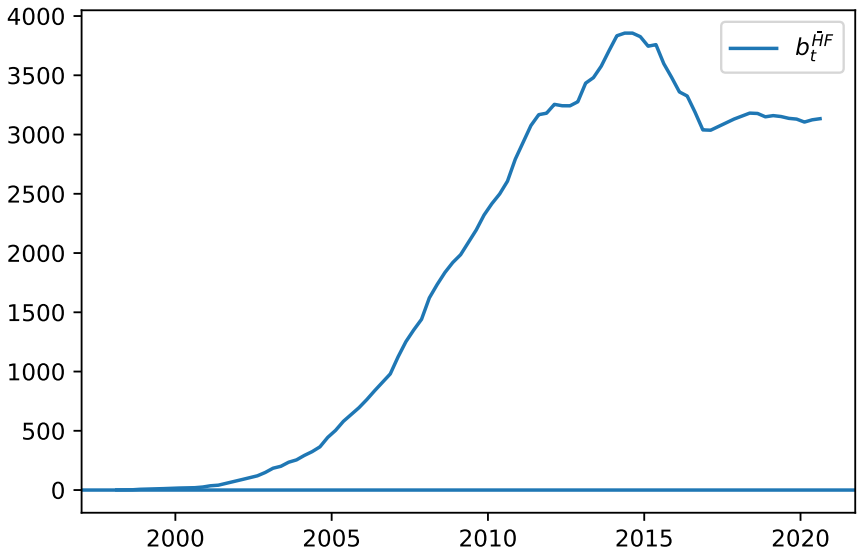

Figure 4: Cumulative official reserve acquisitions of China, in billions of US dollars. Source: International Financial Statistics (IMF).

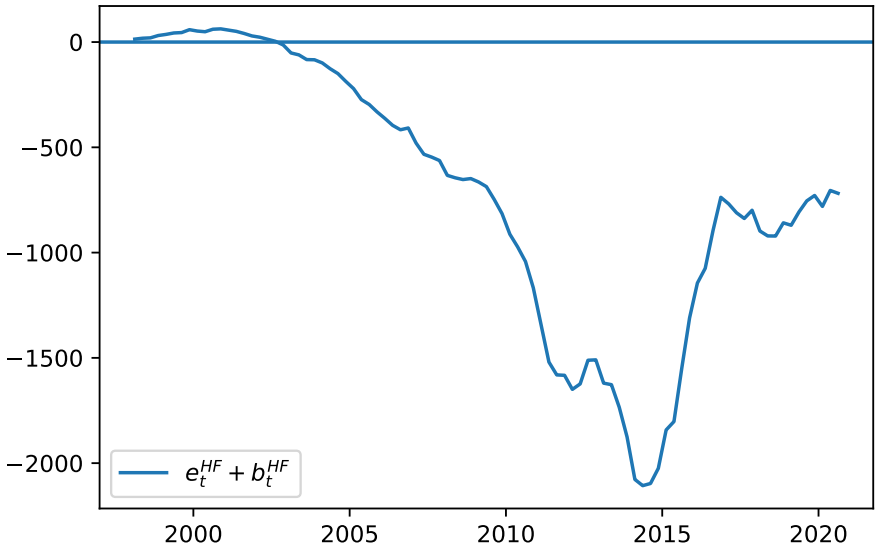

Figure 5: Cumulative net equity and bond inflows of China, in billions of US dollars. Source: International Financial Statistics (IMF).

1. The following questions refer to the Chinese economy during the period from 2005 onwards.

   (a) What does the real exchange rate, Q, measure? State its definition as a formula and also give a brief economic interpretation? [1]

   (b) Figure 1 shows the logarithm of the real effective, or trade-weighted, exchange rate, q_t $(= \ln(Q_t))$, of China. Between 2005Q1 and 2020Q2, Q_t appreciated by 49%. What effect do you think did this real appreciation since 2005 have on China's competitiveness. [1]

(c) Figure 2 shows the net international investment position (NIIP), or the net foreign assets (NFA), z_t^{HF}, of China. Now answer the following two questions:

i) In general (that is, not just in China), how is the NIIP related to the current account balance, CA_t? [1]

ii) Based on the Chinese NIIP depicted in figure 2, what can you say about China's current account balance *after* 2005 in comparison to the years *before* 2005? [1]

(d) Consider figure 3, which shows the cumulative net money inflows, m_t^{HF}, of China. Very briefly, do you think this graph corroborates (= confirms or supports) the currency flow model? Explain your answer. [1]

(e) Consider now figure 4, which shows China's cumulative acquisitions of official reserves. Why do you think did the People's Bank of China (China's central bank) choose to accumulate official reserves very rapidly since 2005. What goal might it have wanted to achieve with this operation? Did it succeed? [1]

(f) Note that only about 2% of all official reserves in the world are held in Chinese yuan, so that the cumulative reserve assets of the People's Bank of China shown figure 4 are approximately equal to the *net* official reserves of China, $b_t^{\bar{\text{HF}}}$ (= foreign bonds held by the Chinese central bank minus Chinese bonds held by foreign central banks).

Now answer the following two questions:

i) Use the analytical balance of payments identity to show how net foreign money inflows and official reserve changes are related to the current account balance and net capital inflows. [1]

ii) Given that according to figures 2 to 4 the cumulative sum of net money inflows and net official reserve acquisitions was greater than the rise in the NIIP since 2005, did China experience net capital inflows or net capital outflows during this period? [1]

Total of question 1: [8]

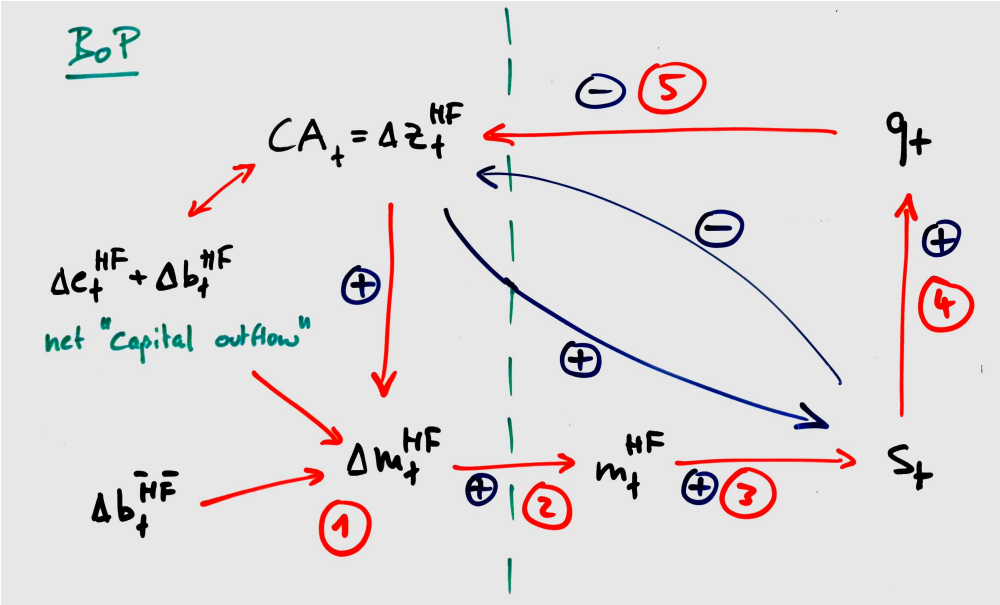

Figure 6: Currency flow model.

2. Consider figure 6, which contains a diagram illustrating the main economic relationships in the currency flow model. For each of the relationships 1 to 5 shown in the diagram, state the relevant formula along with its economic interpretation. [8]

Total of question 2: [8]

3. (a) i) The Ricardian model says that even if one country is more productive than other countries in the production of all goods, it should not produce all of them by itself. Why? [2]

ii) Suppose there is a home country and a foreign country and that both are able to produce apples and bananas. State the criterion that is used in the Ricardian model to decide whether the home country should produce apples or bananas. (Note that it is sufficient if you provide the formula.) [2]

(b) The following question is on the Big Mac index (based on hypothetical data). We assume that the eurozone is the domestic economy and Morocco the foreign economy.

i) Suppose a Big Mac costs 4€ in the eurozone and 20 dirhams in Morocco. Suppose that the actual nominal exchange rate of the euro vis-à-vis the Moroccan dirham, S, is 8 dirhams per euro. According to these Big Mac index data, what is the approximate real exchange rate, Q? [1]

ii) Now assume that relative purchasing power parity holds and that the long-run average of the real exchange rate of the eurozone vis-à-vis Morocco is 2. What level should the nominal exchange rate take to be consistent with this long-run average of the real exchange rate? [2]

iii) Based on your previous answer and the fact that the actual nominal exchange rate, S, is 8 dirhams per euro, do you think that the euro is over- or undervalued vis-à-vis the Moroccan dirham? [1]

Total of question 3: [8]

4. (a) Write down the equation that defines the quantity theory of money and indicate the name of each of the four variables. [2]

(b) Apply log-differencing to the equation you have just stated to show that inflation is mainly driven by money growth. [2]

(c) Write down the equation for the nominal exchange rate as it is used in the monetary approach to exchange rate determination. [2]

(d) Apply log-differencing to the nominal exchange rate equation and, using the result as well as your answer to part b, show how the rate of nominal appreciation depends on the rate of money growth. [2]

Total of question 4: [8]

5. Consider trade between a home country and a foreign country with increasing returns to scale in the productions of cars. Draw a graph with n on the horizontal axis and AC and P on the vertical axis and draw the two curves for the average cost and the price of cars in the combined market, which has a market size of S. Write down the two equations for AC and P that underlie the curves and indicate in the graph how the AC curve is affected by an increase in the size of the combined market, S. [8]

Total of question 5: [8]