

Universität Siegen

Fakultät III – Wirtschaftswissenschaften Univ.-Prof. Dr. Jan Franke-Viebach

Exam "International Financial Markets"
Summer Semester 2015
(1st Exam Period)

Solution

Available time: 45 minutes

For your attention:

1. The exam is made up of 8 pages (including this cover page). Please check and see if the exam you are holding is **complete**.
2. For your answers, use the designated spaces. Should these not suffice, use the backside of the pages. Please do **not** use a **pencil**.
3. Additional materials you may use for the exam: a non-programmable calculator.
4. **ATTENTION:** The names for variables have the same meaning as in the lecture. Insofar as you also use the same symbols for the variables as we did in the lecture you will not have to define these any further.

Question	1	2	3	4	Sum	Mark
Points achievable	7	13	13.5	11.5	45	
Points achieved						

Problem 1: Exchange Rates

The euro spot exchange rate of the Swiss Franc is 1.1 [SFr/ €], and the euro spot exchange rate of the Danish Kroner 2.2 [DKr/€].

- a) What should the [SFr/DKr] cross rate be such that there are no arbitrage opportunities? Please show your calculation. [3 points]

Solution: $1.1 / 2.2 = 0.5$
(1) (1) (1)

- b) Suppose that a bank is quoting 0.8 [SFr/DKr]. At this rate, which currency is overvalued with respect to the other one? [2 points]

Solution: DKr (2)

- c) We want to make an arbitrage profit. Which currency should we buy from the bank? [2 points]

Solution: SFr (2)

Problem 2: Market for Foreign Exchange

- a) The forex market performs several functions. One of these is the exchange function. What is meant by this function? [4 points]

Solution:

transfer of purchasing power from one currency area to the other (or: between
(1) (1) (1) (1) currency areas)

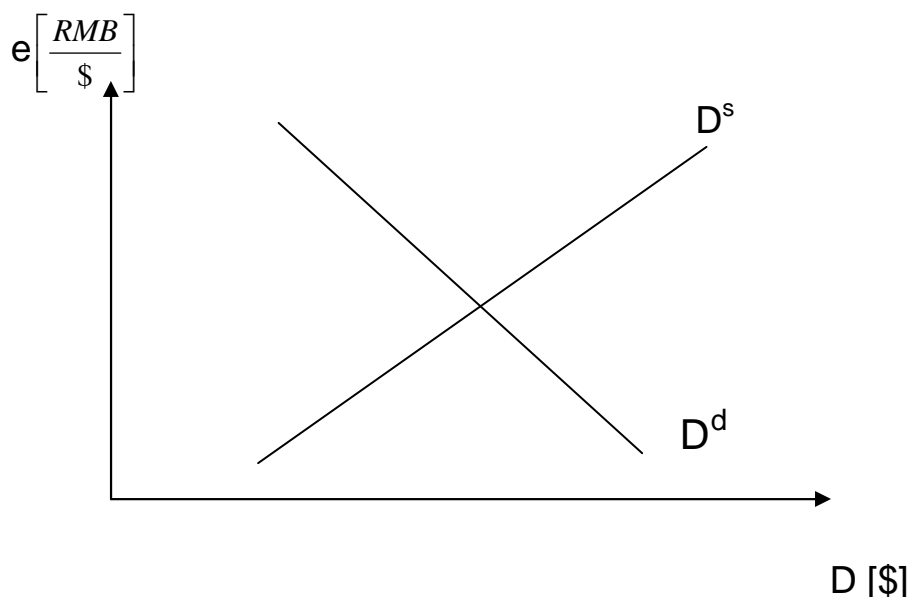
- b) System of a fixed exchange rate.

- b₁ Please name the two elements of a fixed-exchange-rate system and the official institutions responsible for these elements. [6 points]

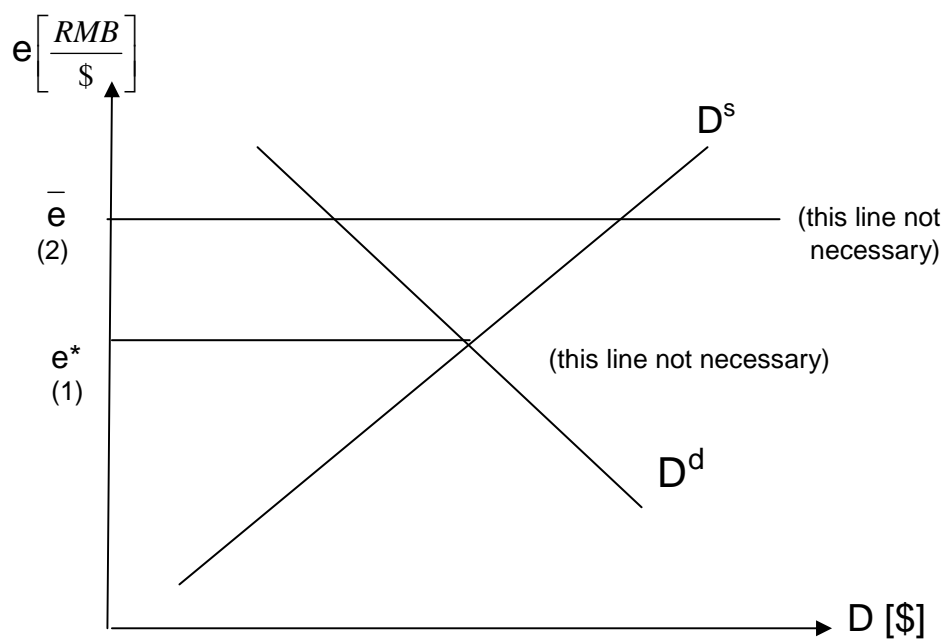
Solution:

- target rate: government (or: ministry of finance)
(2) (1)
- interventions (or: sales and purchases): central bank
(2) (1)

- b₂ In the following graph, we want to illustrate the fixed exchange-rate system of the Chinese renminbi (RMB) against the US dollar (\$). Please indicate on the vertical axis a fixed rate [\bar{e}] such that there is an excess supply of dollars. Please also indicate the equilibrium exchange rate (e^*). [3 points]



Solution:



Problem 3: Price Relations Between International Financial Markets

Consider a currency trader based in Norway. The current spot exchange rate of the US dollar is NKr 7 per US dollar 1. The risk-free rate in the United States is 5 percent per year and the NKr risk-free rate is 10 percent per year.

- a) Calculate the arbitrage-free forward exchange rate of the Norwegian crown in terms of the US dollar. (Please give three digits.) [4 points]

$$e_{\text{fair}}^F \left[\frac{\text{Nkr}}{\$} \right] =$$

Solution:

$$e_{\text{fair}}^F \left[\frac{\text{Nkr}}{\$} \right] = 7 \cdot \frac{1 + \overset{(1)}{0.10}}{1 + \underset{(1)}{0.05}} = 7.333 \underset{(1)}{.}$$

- b) Based on the current forward price of $e^F = 8$ [NKr / \$], we want to examine how the trader can earn a risk-free arbitrage profit.

b₁ The following relation holds if the forward rate is at its arbitrage-free risk value:

$$1 + i_{\text{Nkr}} = \frac{1}{e} (1 + i_{\$}) e_{\text{fair}}^F .$$

What do you call this relation? [1.5 points]

Solution: Covered interest rate parity
 (0.5) (0.5) (0.5)

b₂ Given the true forward rate of $e^F = 8$ [Nkr / \$], please indicate the four transactions needed to make a profit. Please also indicate the four markets where these transactions take place. [8 points]

Solution:

- take funds (or: credit) in Norwegian money market
(1) (0.5) (0.5)

- exchange these funds into US dollars on the spot market
(1) (1)

- invest the dollars in the US money market
(1) (0.5) (0.5)

- exchange the US dollars back into Nkr on the forward market
(1) (1)

Problem 4: International Currency

a) Please name the three traditional functions of money. [3 points]

Solution:

- medium of exchange (1)
- unit of account (1)
- store of value (1)

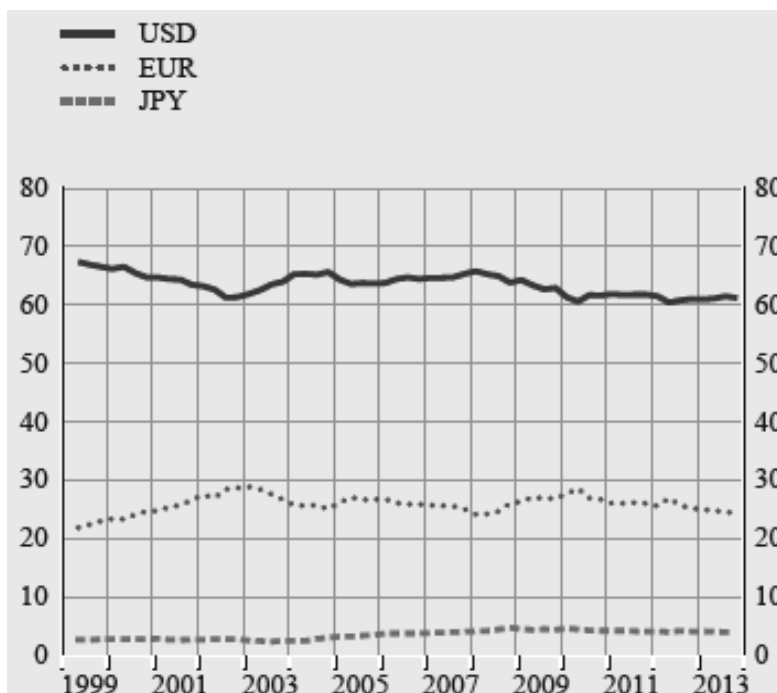
b) Please define an international currency. [4 points]

Solution:

currency that ...

- ... fulfils these functions (or: is used) (2)
- ... outside its country of issue (or: its home country) (2)

c) The following graph shows the currency composition of global foreign exchange reserves.



c₁ Which of the traditional functions of a currency is reflected by its use as a reserve currency? [1 point]

Solution: store of value
(0.5) (0.5)

c₂ Please name and briefly explain one criterion for the choice of a currency as a foreign exchange reserve. [3.5 points]

Solution:

- value of the currency should remain constant to prevent losses
(1) (1) (1.5)

or:

- currency should be widely traded (or: liquid) so that exchange costs are small
(2) (1.5)