

# Universität Siegen

Fakultät III – Wirtschaftswissenschaften  
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Exam "International Financial Markets"  
Summer Semester 2018  
(1<sup>st</sup> Exam Period)

## Solution

Available time: 45 minutes

### For your attention:

1. Please do **not** directly write your answers into this problem set. Use the set of solution pages.
  2. 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.
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Question	1	2	3	4	Sum	Mark
Points achievable	7	13	14	11	45	
Points achieved						

**Problem 1: The Financial System**

- a) Next to financial markets, the financial system comprises three other elements. Please name two of those. [3 points]

**Solution:**

- Financial infrastructure ( or: payment system and financial service firms)  
(0.5) (1)
- Financial intermediaries  
(0.5) (1)
- Financial regulators  
(0.5) (1)

**ATTENTION: maximum 3 points!**

- b) What is the ultimate objective of the financial system? [2 points]

**Solution:**

help increase (or: increase) welfare  
(1) (1)

or: help satisfy (or: satisfy) people's consumption preferences

- c) There are two intermediate goals in achieving this ultimate objective. Please name one of those goals. [2 points]

**Solution:**

- supporting (0,5)  
intratemporal and intertemporal (0,5)  
consumption choices (1)
  
- supporting (0,5)  
the production (1)  
of consumption goods (0,5)

**ATTENTION: maximum 2 points!**

**Problem 2: Integration of Financial Markets**

- a) National financial markets are separated from each other by various types of barriers. Please name two of these types of barriers and give one example for each of them. [5 points]

**Solution:**

- Natural barriers: language, distance, ...  
(1) (1.5)
- State-created barriers: laws, capital controls, ...  
(1) (1.5)
- Barriers created by national market participants: (1)  
cartels, restrictions of access to financial infrastructure (1.5)

**ATTENTION: maximum 5 points!**

- b) Please give a definition of an integrated financial market. [3 points]

**Solution:** access to market is independent of country of origin  
(1) (1) (1)

Or: absence of frictions that discriminate between agents  
on the basis of their country of origin

or: situation where all potential market participants face the same  
business conditions

- c) The interest rates of government bonds of the euro countries started to diverge in the financial crisis of 2008-09. Did this indicate a disintegration of financial markets? [5 points]

**Solution:**

- No (1)
- In the crisis, risks of national government bonds diverged (2)
- The diverging interest rates then simply reflected this divergence in risk (2)

### Problem 3: Price Relations Between International Financial Markets

Consider a German company that needs a credit of 1 million euros for one year. Its financial manager firmly believes that the spot exchange rate in one year will be  $e^e = 0.90$  [€/\$]. The current spot rate is  $e = 0.80$  [€/\$].

- a) The one-year interest rate in the money market of the euro is  $i = 10\%$ . What will the company have to pay in one year if it takes the credit in the euro money market? Please show your calculation. [2 points]

$$\text{Solution: } 1,000,000 \text{ [€]} \underset{(1)}{(1 + 0,10)} = 1,100,000 \text{ [€]} \underset{(1)}$$

- b) As an alternative, the company can take a credit in the American money market.

- b<sub>1</sub> What must be the amount of the dollar credit in order to get the 1 million euros? Please show your calculation. [3 points]

**Solution:**

$$\frac{1,000,000 \text{ [€]}}{0.80 \underset{(2)}{\left[\frac{\text{€}}{\text{\$}}\right]}} = 1,250,000 \text{ [\$]} \underset{(1)}$$

- b<sub>2</sub> What amount of dollars must the company pay back in one year if the American one-year rate is  $i^f = 2\%$ ? Please show your calculation. [2 points]

**Solution:**

$$1,250,000 \text{ [\$]} \underset{(1)}{(1 + 0.02)} = 1,275,000 \text{ [\$]} \underset{(1)}$$

- b<sub>3</sub> Given the manager's expectation of the spot rate in one year, should the company take the credit in the euro area or in the American money market? Please show your calculation. [3 points]

**Solution:**

- Amount of euros to be paid in one year in case of dollar credit:

$$1,275,000 \text{ [\$]} \cdot 0.90 \underset{(1)}{\left[\frac{\text{€}}{\text{\$}}\right]} = 1,147,500 \text{ [€]} \underset{(1)}$$

- This is more than the amount in a) → take euro credit! (1)

c) What would have to be the expected spot rate ( $e^e$ ) to make the company indifferent between a credit in the euro area and a credit in the American money market? Please show your calculation. [4 points]

**Solution:**

In  $b_3$  replace 0.90 by  $e^e$ , then set the amount equal to the amount from a):

$$1,275,000 [\text{\$}] \cdot e^e \left[ \frac{\text{\text{€}}}{\text{\$}} \right] = 1,100,000 [\text{\text{€}}]$$

$$\text{This leads to } e^e = \frac{1,100,000 [\text{\text{€}}]}{1,275,000 [\text{\$}]} = 0.8627 \left[ \frac{\text{\text{€}}}{\text{\$}} \right]$$

(1.5)                      (1.5)                      (1)

**Problem 4: Arbitrage in the Market of Foreign Exchange**

Consider two banks X and Y that quote the following exchange rates of the US dollar against the euro [€/\$]:

Bank X: 0.80 - 0.90  $\left[ \frac{\text{\text{€}}}{\text{\$}} \right]$

Bank Y: 1.00 - 1.05  $\left[ \frac{\text{\text{€}}}{\text{\$}} \right]$

a) From the European perspective, are these direct quotes of the dollar or indirect quotes? [1 point]

**Solution:** direct (1)

b) Each bank quotes two exchange rates.

$b_1$  What is the general term for the first of the two rates? [1 point]

**Solution:** bid rate (1)

b2 Please carefully interpret the figure 0.80 of bank X. [3 points]

**Solution:** bank X pays 0.80 euros for one dollar  
(1) (0.5) (0.5) (0.5) [0.5]

c) Given the above rates of banks X and Y, how can you make an arbitrage profit? [3 points]

**Solution:** Buy dollars at bank X (at 0.90: this is not a required part of the solution)  
(0.5) (0.5) (0.5)

Sell dollars at bank Y (at 1.00: this is not a required part of the solution)  
(0.5) (0.5) (0.5)

d) Given your arbitrage, how would bank X change its quotation? Why? [3 points]

**Solution:**

bank X would increase its ask rate because it would run out of dollars  
(1) (1) (1)