

Universität Siegen

Fakultät III – Wirtschaftswissenschaften
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Exam "International Financial Markets"
Summer Semester 2017
(1st 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 **apencil**.
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	8	14	10	13	45	
Points achieved						

Problem 1: Financial Decisions of Firms

- a) From which perspective does modern finance view the behaviour of firms?
[2 points]

Solution:

Effects on welfare of households
(1) (1)

- b) Briefly name and briefly explain the two types of capital that firms deal with.
Please also give one example of each type of capital.

[6 points]

Solution:

- Physical capital (or: real capital): (1)

Used to produce goods and services (1)

Example: machinery (1)
(or: buildings, land, inventory)

- Financial capital: (1)

Used to finance the purchase of physical capital (1)
(or: represents claims on real assets) (1)

Example: stocks (1)
(or: bonds, loans)

Problem 2: Financial Accounts

We look at the data of the euro area shown in the table in the appendix.

- a) Was the euro area a net debtor or a net creditor at the beginning of the 4th quarter of 2016? Please name the corresponding indicator and give the amount. [4 points]

Solution:debtor in the amount of 762, indicator: "net financial worth"
(1) (1) (2)

- b) Was the euro area a net borrower or a net lender during the 4th quarter of 2016? Please name the corresponding indicator and give the amount. [4 points]

Solution:lender in the amount of 101,
(1) (1)

Indicator: "changes in net financial worth due to transactions"
(2)

- c) By what amount did the euro area's position of a net debtor/net creditor change during the 4th quarter of 2016? Please show two ways to calculate this change by using the appropriate data from the table. [6 points]

Solution:

$$- 673 - (-762) = 89 \quad (\text{or: } - 673 + 762 = 89)$$

(1) (0.5) (1) (0.5)

$$101 - 13 = 88$$

(1) (0.5) (1) (0.5)

Problem 3: Exchange Rates

You noticed that the exchange rate between the Romanian Lei [Ron] and the euro has decreased from 4 [RON/€] to 3 [RON/€].

- a) Has the euro appreciated or depreciated with respect to the Lei? By what percentage? Please show your calculation. [5 points]

Solution:

depreciated (1)

$$\text{by 25 \%: } \frac{(3 - 4)}{4} = -0.25$$

(1) (1) (1) (1)

- b) By what percentage has the value of the RON changed with respect to the euro? Please show your calculation. [5 points]

Solution:

$$\frac{\frac{1}{3} - \frac{1}{4}}{\frac{1}{4}} = 33 \%$$

(1) (1)
(1) (2)

Problem 4: Price Relations Between International Financial Markets

Consider a currency trader based in Russia. The current spot exchange rate of the euro is RUB 60 per EUR 1. The risk-free rate in the euro area is 4 percent per year and the RUB risk-free rate is 2 percent per year.

- a) Calculate the arbitrage-free forward exchange rate between the Russian ruble and the euro. (Please give three digits.) [4 points]

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

Solution:

$$e_{fair}^F \left[\frac{Rbl}{\text{€}} \right] = 60 \cdot \frac{1 + \overset{(1)}{0.02}}{1 + \underset{(1)}{0.04}} = 58.846 \underset{(1)}{.}$$

- b) Based on the current forward price of $e^F = 70$ [Rbl / €], 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:

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

What do you call this relation?

[1 point]

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

- b₂ Given the market forward rate of $e^F = 70$ [Rbl / €], 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 Russian money (or: financial) market
(1) (0.5) (0.5)

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

- invest the euros in the euro money (or: financial) market
(1) (0.5) (0.5)

- exchange the euros back into RUB on the forward market
(1) (1)

Appendix

(EUR billions)

Liabilities	Euro area	Households	Non-financial corporations	MFIs	Investment funds (except MMFs)	OFIs	ICPFs	General government	Rest of the world
2018 Q4									
Opening balance sheet, liabilities									
Total liabilities	123,480	7,048	30,923	33,285	10,305	19,490	9,444	12,984	23,292
Monetary gold and special drawing rights (SDRs)									
Currency and deposits	25,071			24,686				339	2,604
Short-term debt securities	1,318		65	535	6	146	2	565	496
Long-term debt securities	17,299		1,283	3,918	7	3,417	69	8,606	4,115
Loans	24,526	6,267	9,819		102	5,390	450	2,499	4,775
Shares and other equity	39,247	28	16,101	2,747	9,817	9,836	622	96	10,135
Listed shares	6,177		4,927	423	0	686	142	0	
Unlisted shares and other equity	22,165	28	11,174	1,236	0	9,150	480	96	
Investment fund shares (including MMF shares)	10,905			1,088	9,817				
Insurance and pension schemes	8,709		376	138	0	6	8,070	8	29
Other accounts payable and financial derivatives	7,252	644	3,235	1,203	373	695	232	871	1,060
of which: Trade credits and advances	3,107	176	2,604	52	0	55	17	145	268
Net financial worth	-762	15,688	-9,490	677	-252	234	220	-7,839	
Financial account, transactions in liabilities									
Total transactions in liabilities	262	62	223	175	-37	-126	-8	-28	121
Monetary gold and SDRs									
Currency and deposits	242			249				-10	9
Short-term debt securities	-52		-8	-27	-1	12	0	-29	-18
Long-term debt securities	42		33	-37	0	29	0	17	20
Loans	-7	35	-21		-1	-33	-1	15	-75
Shares and other equity	105	0	99	34	82	-106	-5	0	160
Listed shares	46		27	1	0	18	0	0	
Unlisted shares and other equity	-62	0	72	-5	0	-125	-5	0	
Investment fund shares (including MMF shares)	121			38	82				
Insurance and pension schemes	26		2	-1	0	0	24	1	-1
Other accounts payable and financial derivatives	-95	27	115	-45	-118		-26	-21	26
of which: Trade credits and advances	135	7	109	1	0	-1	0	18	2
Changes in net financial worth due to transactions	101	63	43	3	17	-15	5	-14	-101
Other changes account, liabilities									
Total other changes in liabilities	1,352	-11	461	113	202	675	151	-239	417
of which: Revaluations ¹⁾									
Monetary gold and SDRs									
Currency and deposits									
Short-term debt securities									
Long-term debt securities									
Loans									
Shares and other equity	1,084	0	369	207			53		
Listed shares									
Unlisted shares and other equity									
Investment fund shares (including MMF shares)	167			25					
Insurance and pension schemes									
Other accounts payable and financial derivatives									
Other changes in net financial worth	-13	242	45	-326	-1		-152	256	-18
Closing balance sheet, liabilities									
Total liabilities	125,094	7,100	31,607	33,573	10,470	20,040	9,587	12,717	23,829
Monetary gold and SDRs									
Currency and deposits	25,276			24,899				329	2,634
Short-term debt securities	1,274		58	517	6	153	2	538	488
Long-term debt securities	17,107		1,296	3,854	7	3,500	67	8,383	4,138
Loans	24,718	6,296	9,875		101	5,489	443	2,514	4,724
Shares and other equity	40,625	28	16,580	2,981	10,044	10,224	671	96	10,666
Listed shares	6,578		5,131	536	0	743	168	0	
Unlisted shares and other equity	22,856	28	11,449	1,300	0	9,481	502	96	
Investment fund shares (including MMF shares)	11,190			1,146	10,044				
Insurance and pension schemes	8,789		378	137	0	6	8,148	9	28
Other accounts payable and financial derivatives	7,247	665	3,374	1,125	312	667	257	846	1,074
of which: Trade credits and advances	3,259	184	2,728	53	0	56	17	163	274
Net financial worth	-673	15,993	-9,402	353	-237	142	74	-7,597	