Høgskolen i Østfold

EXAMINATION

Course code:	Course:
SFB 12614	**International Finance (10 ECTS)**
Date:	**Duration:**
May 9, 2016	09:00 – 13:00 (4 hours)
Permitted sources:	**Lecturer:**
English – mother tongue dictionary Mother tongue – English dictionary Calculator	Roswitha M. King

The examination:

The examination papers consist of 4 pages inclusive this page. Please check that the examination papers are complete before you start answering the questions.

The exam consists of 4 (four) exercises. You must solve all four exercises. The exercises have equal weight.

Date of announcement of the examination results: June 2, 2016

The examination results are available on the Studentweb no later than two workdays after the announcement of the examination results. www.hiof.no/studentweb

---

Show all your calculations and interpret their meaning. Explain all symbols that are not already explained in the given text. If formulas are involved, first work with the general formula, then later fill in numbers. Give opening and concluding statement.

Good luck!

---

1. The «Law of One Price» and the Big Mac Index

Assuming that the Big Mac is indeed identical in all countries that have a McDonalds, we consider the following historical case study: A Big Mac in the Euro area (the weighted average across EU member states) costs €2.92. The same Big Mac in the USA costs US$3.06. The actual exchange rate at the relevant point in time is $1.2260 / €.

(a) Calculate the implied PPP exchange rate in the form of US$ / €, where PPP denotes Purchasing Power Parity.

(b) Calculate the degree to which, according to PPP, the Euro is either undervalued or overvalued relative to the US$ expressed in percent.

(c) Explain the concepts *Law of one Price* and *Purchasing Power Parity.*

(d) Would you recommend to use the result of (b) for the purpose of short term currency speculation. Explain why or why not.

2. International Fisher Effect

Consider the Eurozone and the USA. We assume that the USA is the 'home country'. In this case an indirect quote is of the form € / US$. Let S denote the spot exchange rate, S_1 denote the spot exchange rate at the beginning of the period, and S_2 the spot rate at the end of the period under consideration. (all expressed as number of euros per US dollar, € / US$). Let $i^{\$}$ and $i^{€}$ denote the respective comparable interest rates in USA and in the Eurozone. Under these conditions the International Fisher Effect is represented by the formula:

$$\frac{S_1 - S_2}{S_2} = \frac{i^{\$} - i^{€}}{1 + i^{€}}$$

We assume in addition that the period under consideration is exactly one year; the annual interest rate in the USA is 5% and the annual interest rate in the Eurozone is 4%.

The spot exchange rate at the beginning of the period is €0.8 /US$.

a) *Assuming that the International Fisher Effect holds, what should be the €/US$ spot* exchange rate at the end of the period according to this theory? Calculate the numerical value of the exchange rate.

b) Substitute the numerical values of exchange rates and interest rates into the equation, given above, and calculate the numerical value of the left hand side and right hand side. Are the two sides equal-valued?

c) Using your numerical results from (a) and (b) and the information given in the text above, explain the main message of the International Fisher Effect. You can first state the general principle if you like, but afterwards you must engage the given and *calculated numerical values to illustrate how the general principle applies in this* particular case.

3. Triangular Arbitrage

You are a Wall Street currency trader. Your computer software has identified a Triangular Arbitrage Profit Opportunity. You need to make a move immediately before somebody else exploits this opportunity. So here is the relevant information:

You start out with US$ 1000000 (one million US dollars).

On your computer monitor you see the following:

Citibank quotes US dollar per Euro:	$1.2223/€
Barclays Bank quotes US dollar per British Pound :	$1.8410/£
Dresdner Bank quotes Euro per British Pound:	€1.5100/£

You trust your computer software that a profit opportunity lies in front of you and you act.

a) Calculate the profit from triangular arbitrage and explain all steps and calculations in detail.

b) Explain in words the concept of triangular arbitrage.

c) It is said that triangular arbitrage offers the possibility for "virtually risk-free" profits. Explain why such profits are considered "virtually risk-free". What kind of risk is it that triangular arbitrage is "virtually free of" ?

d) Now suppose you were back in the days before fancy software was available to point out arbitrage profit opportunities to you. Show how you can determine whether or not an arbitrage profit opportunity exists by only using the three quotes, given above, and the concept of cross rates.

4. Theories of Exchange Rate Determination

Determining and predicting exchange rates is notoriously complicated. A number of theories have been developed. Each of them refers to some theory-specific drivers of exchange rate developments. Each of the theories is subject to criticism, because each takes a relatively narrow view. You are asked to describe each of the theories listed below and to give a critique of each theory.

a) The Purchasing Power Parity (PPP) approach.

b) The Balance of Payment approach.

c) The Asset approach

- (i) The Monetary approach.
- (ii) The Asset market approach.

■