Maastricht University

# International Macroeconomics

## Course book

(This version: December 2017)

### Course code SSC 2038, Period 4

**University College Maastricht &**
**School of Business and Economics**
**Maastricht University**

**Academic Year: 2017/2018**

**BEFORE COMING TO THE FIRST MEETING, PLEASE STUDY CHAPTER 1 IN THE TEXTBOOK AND READ THIS COURSE BOOK UP TO AND INCLUDING SECTION 3.1.**

# TABLE OF CONTENTS

# 1. INTRODUCTION

## 1.1. A course in International Macroeconomics

Economic events across the world repeatedly illustrate how closely connected we are in the 21st century. In many respects, past and ongoing economic and political integration have an impact on our daily lives – sometimes very obviously and sometimes in a more subtle way. While most economists perceive economic and political integration as a positive thing, there is also awareness of potential problems and challenges that may arise. In a macroeconomic context, clearly, the recent economic and financial crises come to our minds.

International macroeconomics deals with the linkages between (not so) independent economies, namely, how certain developments in one location may – or may not – transmit to other countries. A major part of this course is attributed to studying the role and functioning of exchange rates. Although a relatively young subfield of economics, exchange rates are a fundamental component of almost every cross-border transaction. You will see that its role is highlighted in probably every session of this course.

The course begins with a general review of different types of exchange rates, in terms of their interpretation and determination. You will learn about different "regimes" of exchange rates and about their advantages and disadvantages from the viewpoint of a government that pursues several goals. Later in this course, linkages between the international monetary dimension and national real economy outcomes are studied; e.g. employment, consumption, and investment. Many recent debates in global politics can be better understood with this knowledge.

An important insight of this course is to realize and understand why there's no simple way for national governments to design policies for internal objectives without taking into account also its external consequences. The Eurozone and its neighbours provide plenty of real-life examples for our study of international macroeconomic integration.

## 1.2. Expectations

This section informs you about the expected background knowledge when you start the course and about your expectable advancements after successful completion of the course.

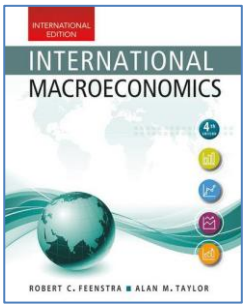
So far, you have been introduced to the economic concepts in the course *Principles of Economics*. It concluded with an introduction to macroeconomics and international economics. Considering the former, you have learnt how nominal and real GDP are computed, the relation between interest rates, private savings and private investment, and about the role of government expenditures. Then, once we allow for international trade in goods and services, we can evaluate under which conditions purchasing power parity holds, how it relates to exchange and interest rates, how the value of exports and imports affects a country's GDP, and the role of Central Banks.

Some of the topics of this course will already be familiar to you. Yet, the objective is to link all these concepts to their empirical and/or theoretical context to promote a better understanding of real-world issues and policy debates. The tutorials, lectures, self-study and the project are complementary building blocks for the achievement of this goal. Lectures will provide you introductions and

background information, facts and theories based on the content of the textbook (see next subsection). Tutorials will serve to deepen this understanding by applying it to dedicated questions and debates. In the project we will learn how to retrieve and handle data, and present it in an informative way to relate it to the course contents.

The knowledge and skills you acquire during this course will equip you with the fundamental understanding of economic aspects regarding globalization and international macro-level analyses. It will enable you to better grasp and assess the different facets of international economic negotiations that dominate public and political debates. You're encouraged to practice this by reading international financial newspapers (*e.g.* the *FINANCIAL TIMES* and the *WALL STREET JOURNAL* are available for free each morning in the SBE building). The course will also lay the foundations for further studies of international economics that you may pursue at a later stage of you study program.

## 1.3. Compulsory Literature




The textbook for this course is:
Feenstra, R.C & A.M. Taylor, *International Macroeconomics*,
4th edition, Worth Publishers, 2017
ISBN-13: 9781319127626

## 1.4. Assessment

The examination of your course performance is based on four elements: (i) a written test at the end of the period; (ii) the course project; (iii) active participation and (iv) course assignment. The following table and subsections provide you further details on each component.

Table 1. Description of assessment elements

| | Exam requirements | Description | Weight in final grade |
|---|---|---|---|
| 1 | Written test after the group meetings | 50% Closed questions (MCQ)<br>50% Open questions | 50% |
| 2 | Project | 50% Final presentation<br>50% Report | 40% |
| 3 | Participation | Participation during the group meetings, and discussion of team project presentations | 10% |
| 4 | Attendance /Course assignment | Attendance in at least 9 tutorials or – if criteria in 1.4.3. are met – additional assignment.. | Pass |

### 1.4.1. The written test

The written test consists of a mixture of open and closed (multiple choice) questions. Time available for the exam is 2 hours, and it is a closed book test. The compulsory literature to study for the exam corresponds to all the literature studied for the tasks; i.e. Chapters 1 through 10 of the textbook mentioned in Section 1.3., but excluding Chapters 6 and 9.

Besides testing knowledge about the concepts presented in the course, the exam evaluates students' critical thinking as well as their ability to embed the concepts presented in the course into a real-world context. Preparation to such learning goals is obtained by reading the additional literature and attending the lectures.

Students failing to pass the written test will be given a second opportunity in a re-sit period. The re-sit is of a similar form as the first test. The grading standards in the re-sit will be equal to the standards for the first test.

### 1.4.2. Participation grade

Participation includes the contributions to group meetings as well as the discussions after the project presentations. The tutor determines this grade. Contributions to group meetings consist of being present, in time, asking questions, giving answers, and everything that helps the group working better.

### 1.4.3. Project grade

The tutor will grade the team project with a grade from 1 to 10. This project is a team effort, details are provided below. If the team's project is graded below 5.5, a second chance will be offered in the re-sit week of period 6. The project grade includes the presentation of the project results in Meeting #10. The first presentation in Meeting #5 is not graded.

### 1.4.4. Attendance and course assignment

Students who have not met the attendance requirement specified in Table 1, but who have not missed more than 3 of the 11 group sessions, will be given a provisional overall grade, but will not receive credits for the course until they have successfully completed the additional assignment (see below). The additional assignment must be sent by email to the course coordinator and uploaded on the Student Portal within 10 working days after the first-sit exam. Not fulfilling the rules for attendance and assignment will result in a fail for the course.

*Additional assignment:*
Write the answers to each task for which you missed its post-discussion due to absence in the group session. Elaboration of the answer to each task may not be longer than one page.

## 1.5. How the course has changed

The course outline and its basic content are closely related to previous editions. However, the materials, tasks, and problems have been updated and modified.

- A new edition of the textbook will be used for this course. While the fourth edition is structurally similar to the previous version, page numbers and end-of-chapter may deviate significantly.
- The number of lectures has been increased from 2 to 4. They will serve for presentation and explanations of the main theoretical concepts, as well as for discussion of empirics related to the course.
- The assessment requirements and weights have been changed. The weight of the exam has been increased, and a slightly lower weight is attributed to the project.

- Tutorial sessions do both PBL based discussion of tasks and working through explicit questions and numerical examples. This is a major difference to previous courses, but hopefully gives students better guidance for what they can expect in the written test.

## 2. COURSE OUTLINE

Please note that the dates (and times) in the course online schedule that you will receive are binding, **not the ones in the schedule below**. The dates below are **indicative**, they were written down before the final course schedule was announced.

The information provided in this section is preliminary. In particular, course dates and hours have not been assigned at the time of writing this course manual. Binding information on dates and times for the course will be accessible through the course online schedule.

Generally, the course is composed of 3 core elements. There are in total 4 lectures, 11 tutorial group sessions, and a team project running during the course. A tentative outline of the time structure of this course is presented in Table 2, below.

Table 2. Preliminary course outline and overview of topics

| *Week* | *Meeting Dates* | *Prepare before* | *Post-discuss* | *Pre-discuss* | *Project* |
|---|---|---|---|---|---|
| 1 | **Lecture 1: Introduction and exchange rate theory** | | | | |
| | **1**. Wed 07 Feb | Chapter 1 | Task 0 | Task 1 | |
| | **2**. Fri 09 Feb | Chapter 2 | Task 1 | Task 2 | |
| | 12-16 Feb | CARNIVAL WEEK – No tutorials | | | |
| 2 | **3**. Wed 21 Feb | Chapter 3 | Task 2 | Task 3 | |
| | **4**. Fri 23 Feb | Chapter 4 | Task 3 | Task 4 | |
| 3 | **Lecture 2: (Inter-)national accounting, wealth, and the balance of payments** | | | | |
| | **5.** Wed 28 Feb | | ***First Project Presentations*** | | ***Present*** |
| | **6.** Fri 02 Mar | Chapter 5 | Task 4 | Task 5 | |
| 4 | **Lecture 3: Exchange rate regimes and crises** | | | | |
| | **7**. Wed 07 Mar | Chapter 7 | Task 5 | Task 6 | |
| | **8**. Fri 09 Mar | Chapter 8 | Task 6 | Task 7 | |
| 5 | **9**. Wed 14 Mar | Chapter 10 | Task 7 | | |
| | **10**. Fri 16 Mar | ***upload Report*** | ***Final Project Presentations*** | | ***Present*** |
| 6 | **Lecture 4: Wrap-up and outlook** | | | | |
| | **11**. Wed 21 Mar | *Recap* | | | |
| | Fri 23 Mar | No tutorials | | | |
| 7 | 27-31 Mar | EXAM WEEK | | | |

## 2.1. Group tutorials

The core of this course is formed by the group tutorials. In total there will be 11 meetings (sessions), usually two times per week. The tutorials are designed for PBL, where sessions begin with post-discussion of a task and end with pre-discussion of another task.

Tutorials require dedication and willingness to cooperate as a group. This will be a demanding task for you and your fellows group members: active participation during the meetings and preparation of discussions/presentations. Apart from that, you will have to reveal your ability to keep your group members on track when necessary. The requirements for the group tutorials are, thus, beyond physical presence. Of course, you are not entirely on your own. A tutor will be at your disposal during these sessions, and the tutor will share responsibility for the way the group is functioning.

We urge you to start your first meeting by making clear arrangements about:

- Who takes notes
- Who chairs a session
- When and how to evaluate the way your group is working.

It will be clear that the group's performance as a whole will improve when every member takes these duties seriously. In addition, the different roles that students need to play will be part of the preparation judgements by the tutor (see section 2.3.1 below).

**SOME GENERAL RULES OF THE GAME**

- Be on time
- Participate actively
- Have an open attitude towards others
- Prepare thoroughly

## 2.2. Lectures

There are four lectures in this course, held by the coordinator. These lectures are essential elements of the learning process in this course. Each lecture covers a major topic and will explain to you basic theoretical tools and concepts. Empirical data and alternative explanations not found in the book make lectures a complementary element to the tutorials.

Their main role is to clarify, illustrate, and foster the knowledge acquired and tested during tutorial sessions. Students are encouraged to ask questions! Additional references and literature will be provided through the Student Portal, if applicable.

## 2.3. Tasks

Tasks are the basis of the discussions in the tutorial sessions, and are specified in Section 3 below. In total, you will have to work through 8 tasks, which contain general discussions, exercises, and problem sets from the course-accompanying textbook.

You should discuss and solve these tasks with your tutorial group, by following the "seven-steps approach" of the PBL method. The following steps are essential

- Make an inventory of the existing knowledge in your group.
- What do you have to know to solve the problems?
- What do you know already?
- How can you acquire the missing knowledge? (this you will have to acquire as homework)
- Discuss what you did at home in the next session and see whether the problem has been solved.

Your own evaluation constitutes a crucial part of the learning process and the tutor will see to it that this step is performed adequately. You may then extend the "seven-steps approach" by asking how your lessons add to what you've learned so far.

The planning group has attempted to bring variety to the tasks. This means that not all tasks are suitable for a strict application of the "seven-steps approach" of PBL. Sometimes you will have to do some accounting, analyse a graph, or discuss a table. The planning group deliberately chose this variety to make you think thoroughly about how to tackle the problems addressed in the tasks.

## 2.4. The team project

In addition to the tutorials and lectures, you are required to take part in one additional activity: the team project. The aim of this project is to understand the influence of exchange rate regimes on trade flows, both in the short and in the long run. It will also produce a historical recap of the monetary integration in Europe, which started in the late 1970s. You will follow the European monetary integration process and its consequences for an individual country over time, by studying its balance of payments and other macro-economic variables.

A constant theme of the European unification process consists in the fact that almost all the European countries have adopted, in recent history and at least for some years, a fixed exchange rate regime (the ERM or the ERM II) Many have eventually entered the Eurozone. Both the type of the regime and its duration over time change from country to country, and the consequences of the adoption of the regime can be detected in the trade data. In turn, trade flows mirror the imbalances between savings and investment in the country. All these relations will be theoretically explained during the lectures and tutorials. The project will show how the same theoretical explanations can help to understand the recent history of Europe's economies.

Teams of 3-4 students will work on the project. The components of each team are chosen by the tutor. Several analytical tasks must be accomplished, in terms of elaborations on the country's approach towards the European monetary integration process (see below). At the end of the course, each team will have a collective grade, that is: each team will have a different grade, and each component of the same team will get the same grade.

There are three deliverables:

1. The **first presentation** (in Session #5), describing results of Task 1 in the project manual
2. The **report**, to be sent to the tutor *before* Meeting #10 and to be uploaded as SAFEASSIGN on the Student Portal, and consisting of two parts

- Part 1 in which the results of Tasks 1-3 are included as part of a coherent description of the history of the country's balance of payments and, in general, of the country's economy as connected to its exchange rate evolution;
- Part 2 in which you as a team reflect on your cooperation within the team.

3. The **second presentation** (in Meeting #10), in which the main conclusions of the project are shown

The grade will be based on the second presentation and on the report (see the weights in Table 1). The first presentation allows the team to receive early feedback in the course of the preparation of the project, and the second one is meant to summarize and illustrate the same findings that are described, in detail, in the report.

The teams are free to schedule their work as they prefer. Of course, the tasks are connected with topics dealt with during the course, so some natural connections will arise between the team's schedule and the tutorial meetings' schedule, and it is part of the team's work to infer the best timing for accomplishing the tasks.

*The description of the tasks and other details regarding the project are presented on a separate document posted on the Student Portal.*

## 2.5. The course coordinator

Course coordinator and tutor is Karsten Mau (SBE/AE2);
Mail: k.mau@maastrichtuniversity.nl

# 3. THE GROUP TUTORIALS

## 3.1. MEETING 1

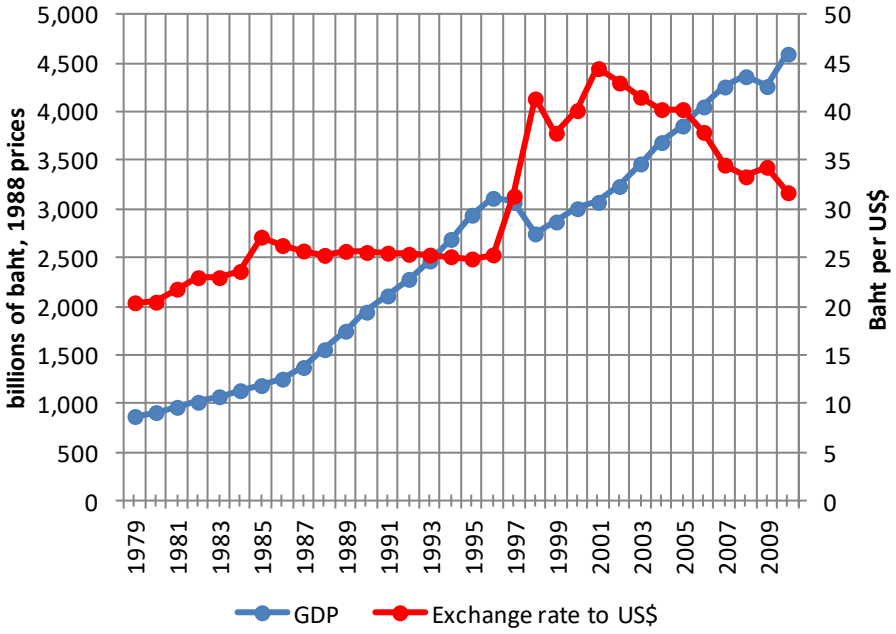
### Task 0: Introduction

Before coming to the first meeting, you have to study Chapter 1 in the textbook. We will use the material in the chapter to discuss and introduce some topics that will be studied in greater detail during this course. Use the following points to orient your discussion:

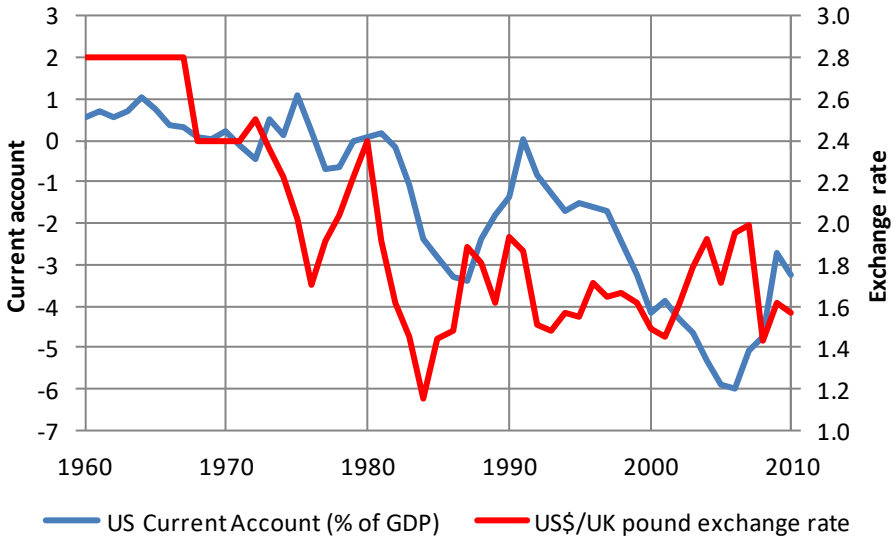
***Exercise 1***

1. On 30 December 2015, an Apple iPad Air (32 GB, Wi-Fi only) cost US$499, or £359, or €449. Do these prices contain any information about the exchange rates between the three currencies?

2. The following graph gives some key information about the economy in Thailand. In 1997, Thailand was hit by a severe economic crisis. Discuss how you think that the exchange rate may have played a role in this crisis.



3. The following graph gives some key information about the US economy. Discuss the statements below the graph (notice: they might not be true).




- The US dollar has a floating exchange rate (against the UK pound).
- Since 1980, gross national expenditures in the US have been smaller than gross national disposable income.
- External wealth of the US has been declining since 1980.
- The exchange rate is an important determinant of the current account.
- The current account can be an indicator of financial openness. It shows that the US financial system has been increasingly integrated with other countries.

***Problems***:

- Chapter 1, Problem 1 (current account)
- Chapter 1, Problem 4 (economic development and well-being)

***Literature***: Feenstra & Taylor (2017), Chapter 1.

***Pre-discussion***: Task 1

## 3.2. MEETING 2

**Task 1: Exchange rates and arbitrage**

***Discussion:*** Exchange rates are the most important prices when we think about international economics. Not only do they determine the prices of exports and imports of a country. They also influence the returns of financial assets across countries. The foreign exchange rate (forex) market has grown significantly in recent years.

"According to the Bank for International Settlements, in April 2010 the global forex market traded $4.0 trillion per day in currency, 20% more than 2007, twice as much as in 2004, and almost five times as much as in 1992" (Feenstra &Taylor, 2017: 39). Like any financial market, the foreign exchange market can be characterized by a *no-arbitrage condition*. For example, from Table 3 below, the no-arbitrage condition teaches us that, from the US perspective, the exchange rate of the dollar against the Yen was 0.01286 on December 30$^{th}$, 2011. This is a procedure we can easily follow for all possible pairs of currencies in the table. In its simplest form, this helps us to calculate a much larger range of spot exchange rates than just the bilateral ones found in Table 3.

The idea of (no-)arbitrage also helps us to build a theory about the forward exchange rate. In this case, we analyse the investor's decision about the currency in which liquid financial cash balances should be held. Obviously, an investor will place her cash in bank deposits that yield interest earnings over time; but in which currency? How can investors handle the risk associated with such a decision?

***True or False:***

- The US – Eurozone Exchange Rate varies a lot and would be considered a fixed exchange rate.
- Using the UIP equation, if the interest rate on US dollar deposits rises, then the Dollar/Euro spot exchange rate decreases.

***Exercise 2***

Table 3 (see next page) shows the bilateral exchange rate of the Euro vs. some of the world's major currencies, between 2009 and 2011. Table 4 (see next page) shows the shares of respective countries in total Eurozone's trade.

2.1. What happened to the value of the Euro relative to the other currencies in this period?

2.2. The Japanese Yen has appreciated against the Euro by about 20 percent. Is this surprising?

2.3. By how much has the value of the Euro, overall, strengthened or weakened?

***Problems***

- Chapter 2, Problem 4 (exchange rates and basic data)
- Chapter 2, Problems 5 and 7 (arbitrage)

***Literature:*** Feenstra & Taylor (2017), Chapter 2

***Pre-discussion:*** Task 2

Table 3: Exchange rates of the Euro in terms of major foreign currencies

| Currency | 2009-12-30 | 2010-12-30 | 2011-12-30 |
|---|---|---|---|
| Swiss Franc | 0.672 | 0.801 | 0.821 |
| Chinese Yuan | 0.102 | 0.115 | 0.122 |
| British Pound | 1.111 | 0.173 | 1.194 |
| Japanese Yen | 0.008 | 0.009 | 0.010 |
| US Dollar | 0.695 | 0.761 | 0.774 |
| Danish Krone | 0.134 | 0.134 | 0.135 |

*Source*: www.oanda.com

Table 4: Percentages of total Eurozone trade for selected partners, 2009

| Country | Percent |
|---|---|
| Switzerland | 13.2 |
| China | 22.7 |
| Great Britain | 27.8 |
| Japan | 6.7 |
| USA | 24.7 |
| Denmark | 5.0 |

*Source*: Eurostat

## 3.3. MEETING 3

**Task 2: The future exchange rate**

***Discussion:*** In the previous task you learned that one of the determinants of the equilibrium spot rate is the expected exchange rate. Now the time has come to study the factors that will help you to form this expectation. *I.e.* it is time to think about a theory of what determines the exchange rate in the long run. A very first building block towards such a theory can be found by using the well-known idea of arbitrage, but this time in the market for goods. This leads us to the idea of *purchasing power parity (PPP)*. For PPP, you will have to think about similar baskets of goods that have the same cost at home and abroad. From PPP, it is only a small step towards the *real exchange rate*, which combines the movement of the nominal exchange rate and the general price level.

We have already looked at nominal interest rates when we analysed (un-)covered interest parity. If we combine relative PPP and the uncovered interest rate parity, we will arrive at a relationship between the domestic and foreign nominal interest rates and inflation rates. This is known as the *Fisher effect*.

***True or False:***

- If an automobile costs $32,000 in New York, and $1 = €0.5, then, under the condition of the law of one price, the cost of the automobile in Rome must be €16,000.
- If the home country experiences a positive inflation and its trading partner does not, and if PPP holds, then the home real exchange rate decreases.
- If the prices of goods in Europe increase, while the nominal exchange rate between the Euro and the US dollar has not changed, we say that the US dollar has experienced a real depreciation.

***Exercise 3***

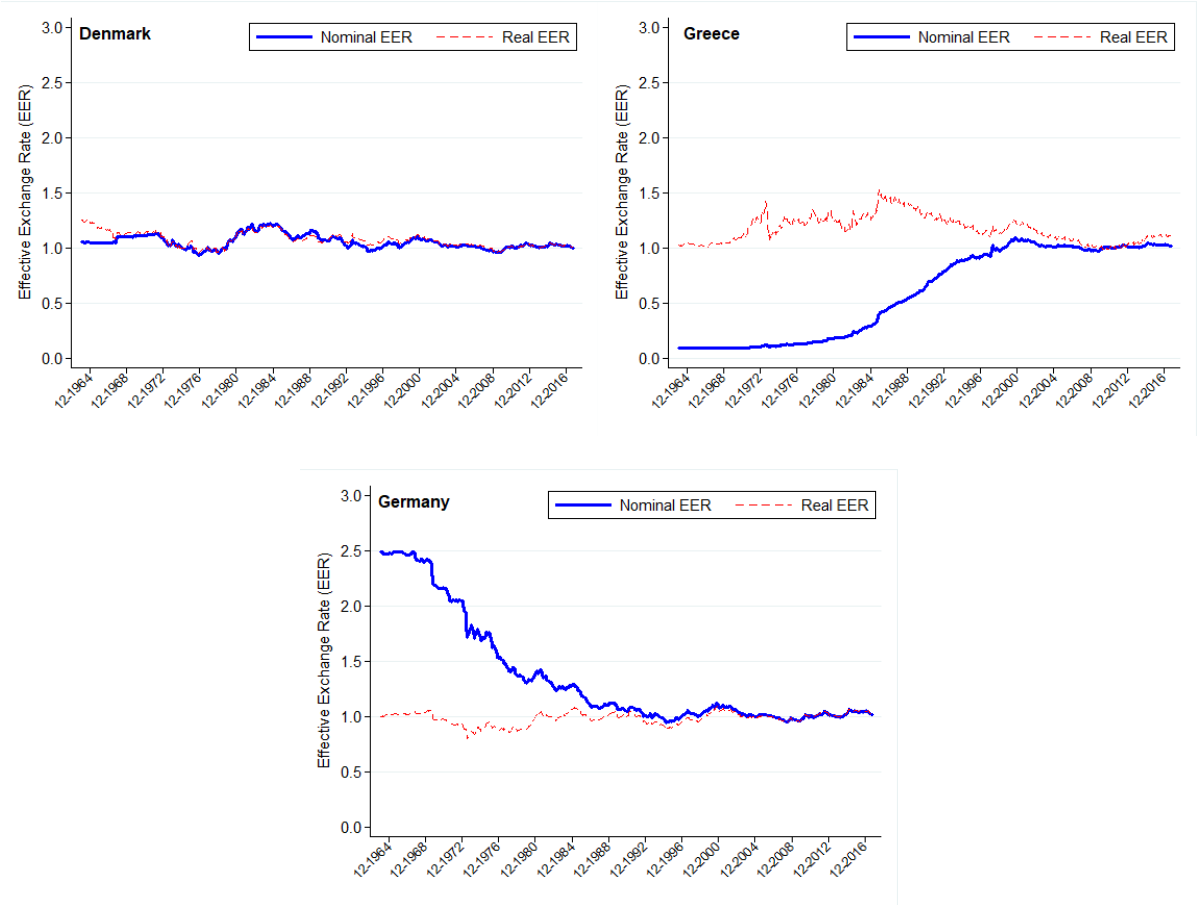
The graphs below display the nominal and real exchange rates for three EU countries. Both exchange rates are effective exchange rates, relative to the most important trading partners of each country, and they are expressed as index numbers; *i.e.* 2010 = 1. Inspect the Figure and answer the following questions:

3.1. Can you tell whether these countries' currencies are overvalued or undervalued?

3.2. Why are NEER and REER so closely related in the case of Denmark?

3.3. What do you think can explain the different patterns between NEER and REER for Greece and Germany?

Figure 1: Evolution of nominal and real effective exchange rate, selected countries.




*Source*: https://www.bis.org/statistics/eer.htm; Monthly data: Narrow indices 1964 – most recent; accessed: Nov. 28, 2017.

***Exercise 4***

Use Figure 2 (see next page) to consider an increase in the domestic money growth at time $t_0$.

4.1. Use the equations of the general monetary approach to explain the relationship between money supply, the nominal interest rate, the inflation rate, and the exchange rate.

4.2. Considering your derived relationships, what should a Central Bank do in order to keep inflation at a target level?

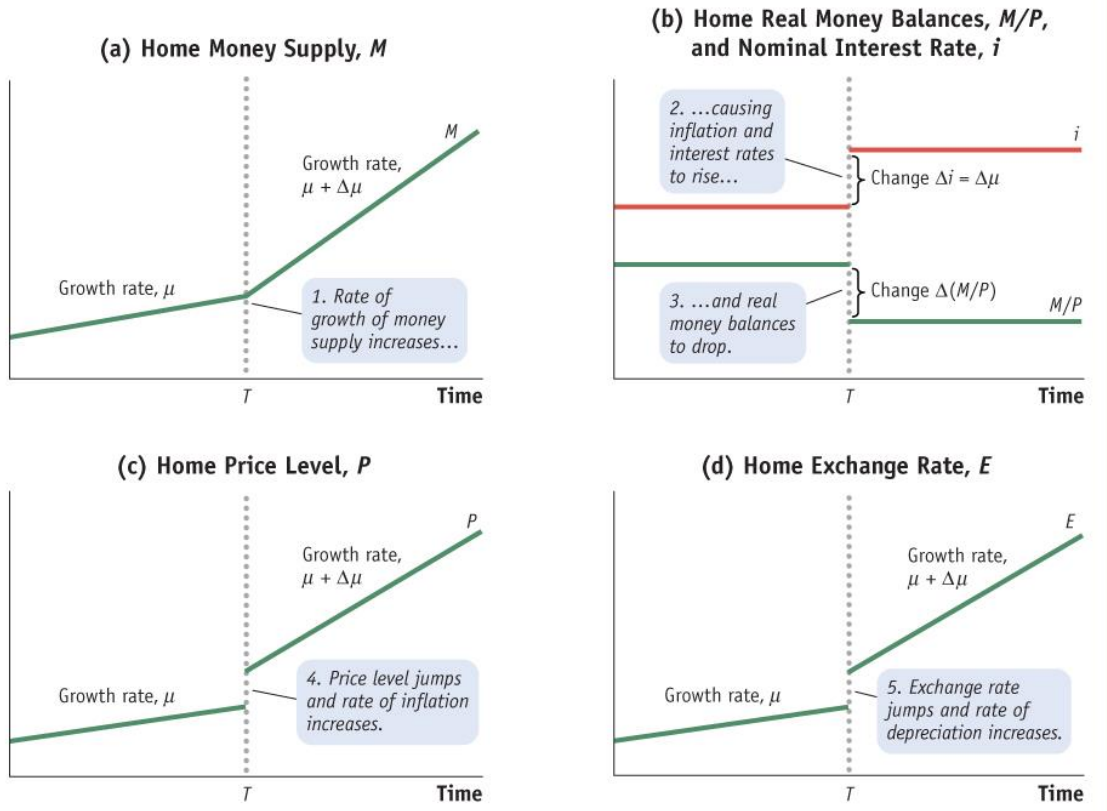
***Problems***

- Chapter 3, problems 2 and 4 (PPP)
- Chapter 3, problems 9 and 10 (the General Monetary Approach)

***Literature:*** Feenstra & Taylor (2017), Chapter 3

***Pre-discussion:*** Task 3

Figure 2: Long-run impact of an increase in the rate of money supply




*Source*: Feenstra & Taylor (2017), Fig. 3-14

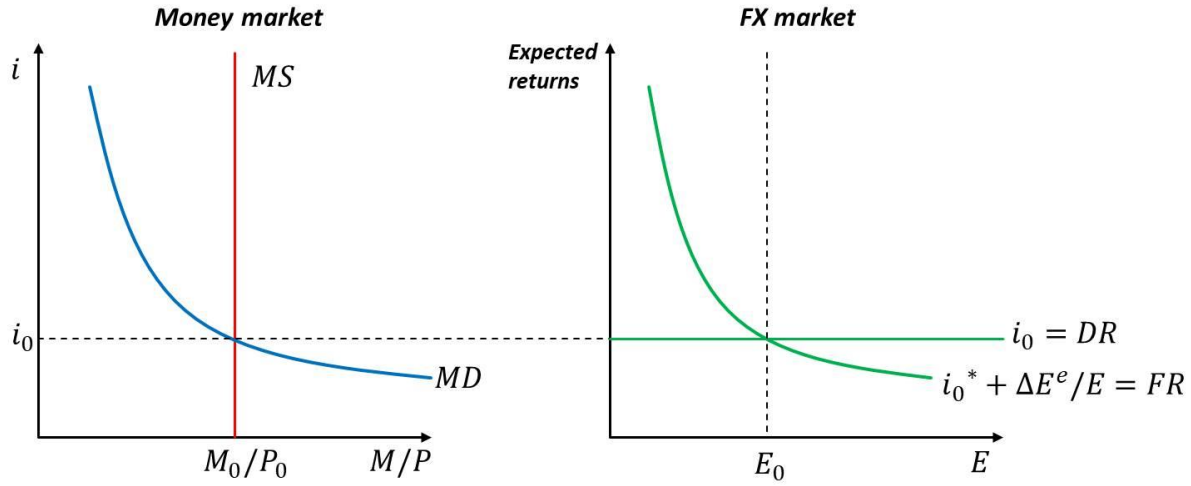
## 3.4. MEETING 4

**Task 3: Linking the short- and long-run**

***Discussion:*** Our theory of the spot exchange rate is based on the uncovered interest rate parity (UIP), and we have taken a detour to explain the variables in that equation (*i.e.* nominal interest rates at home and abroad, and the expected future exchange rate). We are now equipped with the necessary tools to build a theory of the short-run movements of the exchange rate. Such a theory is summarized in Figure 3 below. We can think about our long-run theories of the exchange rate to obtain guidance for judging how the curves in the figures will shift in response to changes in related variables.

Exchange rates are very volatile, more volatile than most other macroeconomic variables. This has become a concern in the 1970s. So far, our theoretical framework has not paid much attention to volatility, but a combination of our short- and long-run theories helps a lot in this respect. In particular, in the adjustment process from the short- to the long-run, an "overshooting" effect is expected, as introduced by Dornbusch (1976).[1]

Figure 3: The money and the forex markets



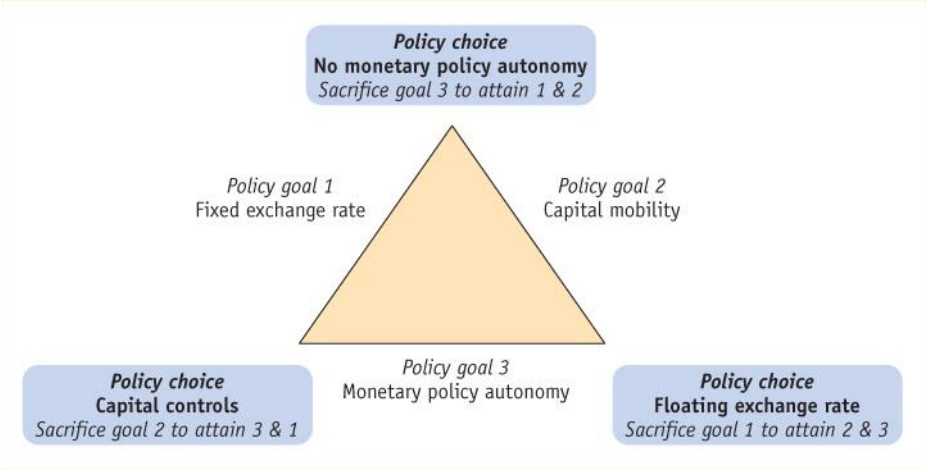

The asset and monetary approaches form a complete theory of exchange rates. Under a floating regime, these two approaches show how market forces in the money and forex markets determine the equilibrium exchange rate. Under a fixed regime, these market forces impose constraints to monetary policy both in the short run *and* in the long run. The Figure 4 represents one of the most important ideas in international macroeconomics, known as the *trilemma*. Nobel Laureate Paul Krugman describes this as follows:

"*The point is that you can't have it all: A country must pick two out of three. It can fix its exchange rate without emasculating its central bank, but only by maintaining controls on capital flows (like China today); it can leave capital movement free but retain monetary autonomy, but only by letting the exchange rate fluctuate (like Britain--or Canada); or it can choose to leave capital free and stabilize its currency, but only by abandoning any ability to adjust interest rates to fight inflation or reces-*

[1] Dornbusch, R. (1976) "Expectations and Exchange Rate Dynamics," *Journal of Political Economy,* 84(6), 1161-76.

*sion (like Argentina* [in 2000]*, or for that matter most of Europe.*" [Paul Krugman: "O Canada: A neglected nation gets its Nobel", *Slate*, Oct 19, 1999.]

Figure 4: The Trilemma




*Source*: Feenstra & Taylor (2017); Figure 4-16

***True or False:***

- When the home exchange rate has fallen in the short run and then increased slightly in the long run, the fluctuations could depend on the fact that the foreign money supply has permanently risen.

***Exercise 5 – The Asset Approach***

Go through the following statements and discuss whether, with a theory of the spot exchange rate, they are true or false.

5.1. A temporary decrease in home production makes real money balances decrease and, therefore, leads to a depreciation of the local currency.

5.2. A temporary increase in the foreign nominal money supply decreases the domestic real interest rate and, thus, causes the foreign currency to appreciate.

5.3. An increase in the expected future exchange rate has the same effect on the spot exchange rate as a fall of the home money supply.

5.4. A temporary decrease in foreign production leads to a depreciation of the local currency.

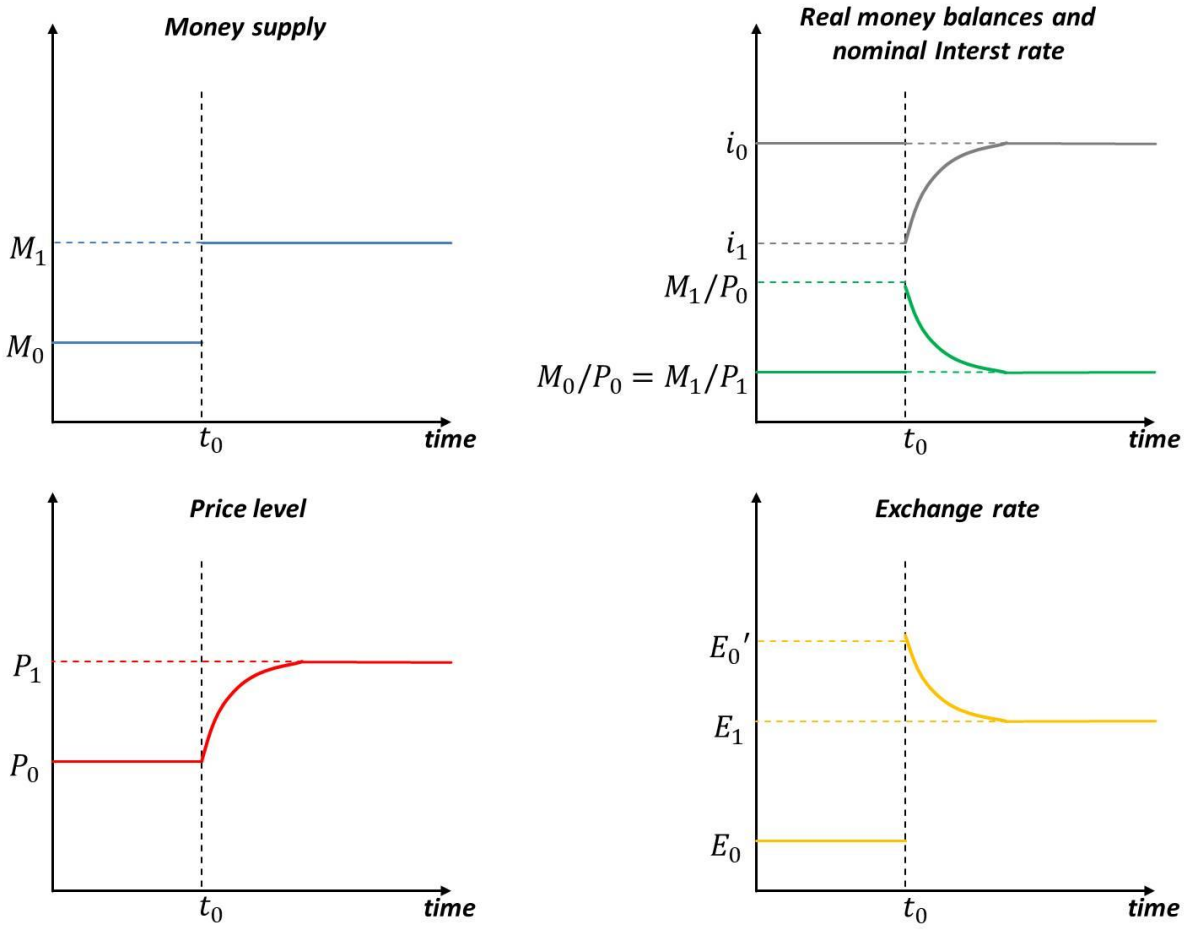
***Exercise 6 – Overshooting***

Now consider a permanent increase in the nominal money supply at time $t_0$, as described in Figure 5 below.

6.1. Which two mechanisms explain the overshooting effect?

6.2. Which of these two effects disappears in the long run?

Figure 5: Exchange rate overshooting




***Exercise 7 – The Trilemma***

7.1. Which of the following policy sets are feasible, according to the Trilemma?

a. floating exchange rate, free capital flows, and monetary policy independence
b. fixed exchange rate, free capital flows, and monetary policy independence
c. fixed exchange rate, capital controls, and monetary policy independence
d. fixed exchange rate, free capital flows, and no monetary policy independence

7.2. Find an example for each feasible policy set (in history and across the world) and place it in the trilemma triangle.

***Problems***

- Chapter 4, Problems 2 (Long and short-run, overshooting)
- Chapter 4, Problems 7 and 9 (Trilemma)

***Literature***: Feenstra & Taylor (2017), Chapter 4

***Pre-discussion:*** Task 4

## 3.5. MEETING 5

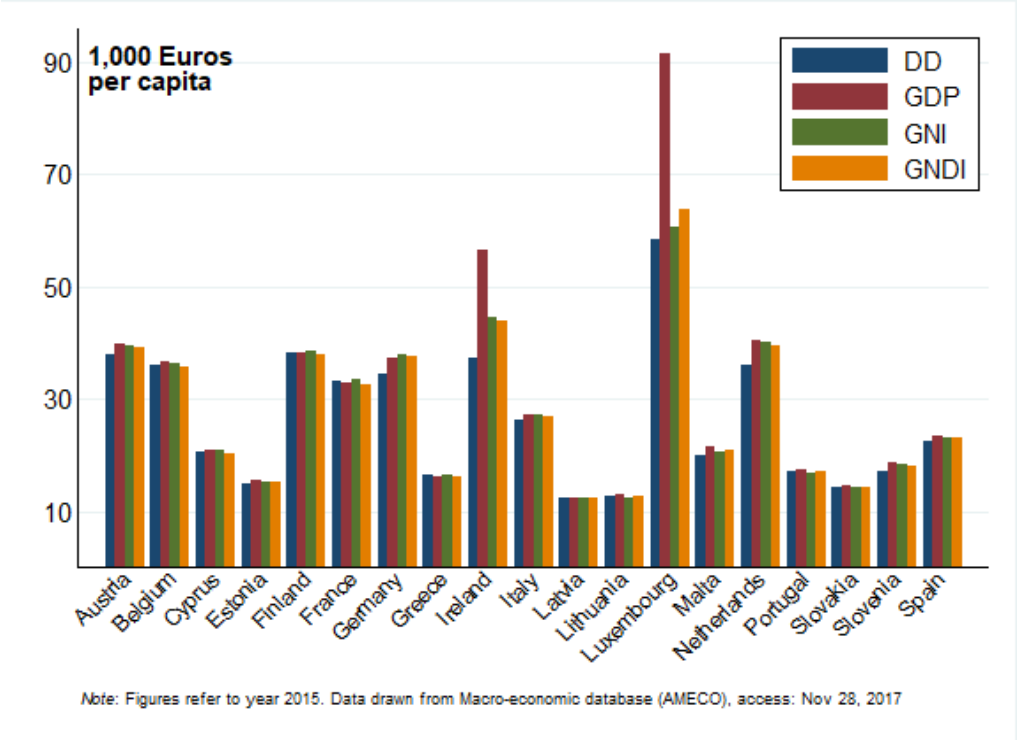
**First project presentations + feedback**

## 3.6. MEETING 6

**Task 4: The Balance of Payments**

***Discussion:*** The graph below displays four main variable from the national accounts in the 15 Euro-Area countries of 2008, measured in Euros per inhabitant. Usually, Gross Domestic Product (GDP) is used as an indicator for macroeconomic performance. However, using different indicators may result in very different conclusions.

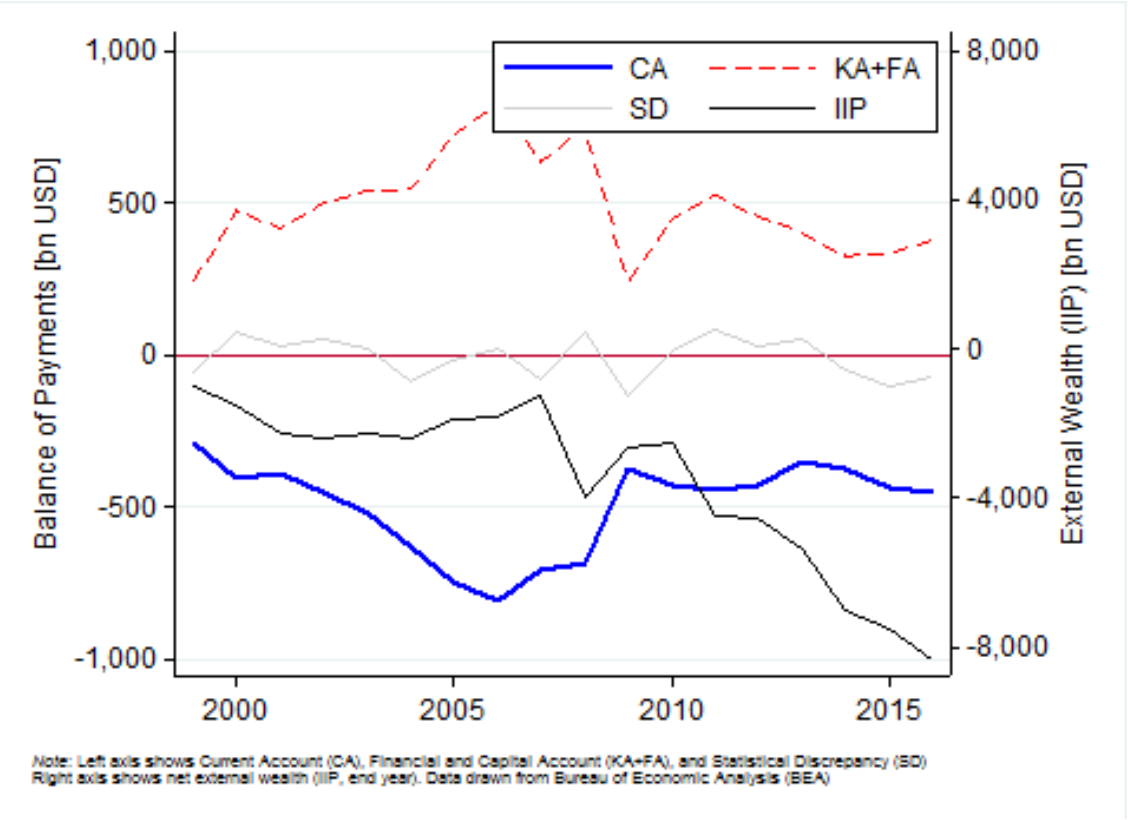
Figure 6: National Accounts in the Euro-Area, 2015




*Note*: Figures refer to year 2015. Data drawn from Macro-economic database (AMECO), access: Nov 28, 2017

Figure 7 (see next page) shows, among others, the international investment positions of the US between 1999 and 2016. External wealth decreases remarkably after 2007. Movements in the current account are more modest and do not seem to be correlated with the IIP. Is there more to accumulation of foreign debt than just the current account? Is there something specific to that particular period?

Figure 7: US Balance of Payments and External Wealth, 1999-2016




***True or False:***

- To calculate the gross national income (GNI) in an open economy, we adjust the gross national expenditure (GNE) by adding the net factor income from abroad (NFIA) plus the trade balance (TB).
- Private savings deficits and government budget deficits contribute to higher current account deficits.
- An increase in external liabilities raises the balance of the financial account.

***Exercise 8***

Table 5 (see next page) shows that the Euro Area is characterized by imbalances that are of similar magnitude as recent global imbalances between, for example, the US and China.

8.1. Which countries have large current account deficits? Which countries have large current account surpluses? Can you find any relationship to explain why?

8.2. The table also shows the evolution of their current account since the financial crisis. Which countries have a stable current account deficit or surplus? Which countries have turned their deficit into a surplus? Which countries have turned their surplus into a deficit? Can you find any rationale to explain why?

Table 5: Current account positions in the Euro Area in % of GDP, 2008-2013

| | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
|---|---|---|---|---|---|---|---|---|---|
| Austria | 4.518 | 2.613 | 2.867 | 1.639 | 1.490 | 1.951 | 2.389 | 1.909 | 1.718 |
| Belgium | -0.999 | -1.076 | 1.764 | -1.073 | -0.053 | -0.318 | -0.674 | 0.442 | -0.396 |
| Cyprus | -15.490 | -7.668 | -11.270 | -4.109 | -5.968 | -4.945 | -4.330 | -2.914 | -5.261 |
| Estonia | -8.677 | 2.541 | 1.799 | 1.334 | -2.442 | -0.105 | 1.030 | 2.292 | 1.897 |
| Finland | 2.246 | 1.914 | 1.243 | -1.779 | -1.934 | -1.602 | -1.259 | -0.594 | -1.062 |
| France | -0.956 | -0.832 | -0.836 | -0.989 | -1.221 | -0.874 | -1.267 | -0.439 | -1.000 |
| Germany | 5.595 | 5.741 | 5.616 | 6.107 | 7.019 | 6.709 | 7.435 | 8.541 | 8.346 |
| Greece | -15.111 | -12.345 | -11.384 | -10.006 | -3.831 | -2.041 | -1.637 | 0.117 | -0.636 |
| Ireland | -6.237 | -4.651 | -1.198 | -1.635 | -2.625 | 2.142 | 1.649 | 10.935 | 3.342 |
| Italy | -2.818 | -1.889 | -3.416 | -3.011 | -0.361 | 0.960 | 1.879 | 1.442 | 2.556 |
| Latvia | -12.349 | 7.778 | 2.046 | -3.158 | -3.626 | -2.730 | -1.960 | -0.775 | 1.477 |
| Lithuania | -13.345 | 2.073 | -0.330 | -3.861 | -1.178 | 1.540 | 3.596 | -2.335 | -0.887 |
| Luxembourg | 7.574 | 7.210 | 6.670 | 6.047 | 5.874 | 5.555 | 5.025 | 5.128 | 4.707 |
| Malta | -1.052 | -6.579 | -4.657 | -0.201 | 1.703 | 2.839 | 9.640 | 5.339 | 7.879 |
| Netherlands | 4.141 | 5.815 | 7.378 | 9.090 | 10.796 | 9.862 | 8.922 | 8.600 | 8.451 |
| Portugal | -12.126 | -10.422 | -10.150 | -6.002 | -1.792 | 1.579 | 0.111 | 0.124 | 0.714 |
| Slovak Republic | -6.367 | -3.447 | -4.711 | -4.951 | 0.941 | 1.859 | 1.146 | 0.166 | -0.729 |
| Slovenia | -5.316 | -0.561 | -0.119 | 0.184 | 2.149 | 4.399 | 5.792 | 4.373 | 5.215 |
| Spain | -9.251 | -4.281 | -3.922 | -3.180 | -0.231 | 1.520 | 1.084 | 1.369 | 1.928 |

*Source*: IMF – World Economic Outlook Database 2017, accessed: Nov 29, 2017.

***Problems***

- Chapter 5, Problem 3 (balance of payments)
- Chapter 5, Problem 8 (external wealth)

***Literature*****:** Feenstra & Taylor (2017), Chapter 5

***Pre-discussion*****:** Task 5

## 3.7. MEETING 7

**Task 5: Economic Policy for the Global Recession**

***Discussion:*** Discuss the following statement from a recent article in the Guardian, linked to a theoretical mechanism called "expenditure switching":

"*Britain's trading position with the rest of the world improved markedly in the final three months of 2016, boosting hopes that the pound's sharp fall since the Brexit vote can help the economy become less reliant on domestic spending.*"

Besides such relation between the real exchange rate and demand, we can analyse the short-run impact of economic policies on macroeconomic performance through the IS/LM/FX model. Expanding on the closed-economy IS/LM model, it combines the money market, the goods market and the exchange rate market into a unified framework. We can derive how an equilibrium in the IS/LM plane determines the spot exchange rate. Or is it the equilibrium in the FX market that determines the equilibrium in the IS/LM plane?

More specifically, our concern is with the broader macroeconomic impact of exchange rate movements, as they affect demand in the global economy.

***True or False:***

- If the US raises the taxes, then the Dollar/Euro exchange rate is likely to increase.
- In the money market, equilibrium is achieved in the short run by the adjustment of prices.
- An increase in the home future expected exchange rate causes the home IS curve to shift to the left.
- It can be shown, using the IS-LM-FX model that an expansion in the supply of money is effective in combating temporary downturns in an economy using a fixed exchange rate.

***Exercise 9 – Marshall-Lerner condition***

The Marshall-Lerner condition shows the role of price changes and elasticities in explaining the relation between exchange rates and the Trade Balance over time. It states that a real depreciation if the exchange rate will improve the trade balance (therefore home demand) if the sum of the elasticities of the demand for imports and exports with respect to the real exchange rate is greater than one; *i.e.* $\varepsilon + \varepsilon^* > 1$, *where*

$\varepsilon = \eta_{IM} = \frac{dIM/IM}{dE/E}$ and $\varepsilon^* = \eta_{EX} = \frac{dEX/EX}{dE/E}$.

9.1. What are the conditions (in terms of the product characteristics, or in terms of the characteristics of the Home and Foreign countries) to be met for expenditure switching to be observed? Give an example in which you believe it does not work.

9.2. We will demonstrate the Marshall-Lerner condition in several steps

a. Define the trade balance as a function of the average price of exports in home's currency ($P_{EX}$), the average price of imports in foreign currency ($P_{IM}$), the exchange rate ($E$), the volume of exports ($EX$) and the volume of imports ($IM$). How do the volume of exports and imports change when the exchange rate depreciates? This will tell you whether they are positive or negative functions of the exchange rate.

b. Express the derivative of the trade balance with respect to the nominal exchange rate.
c. Identify the elasticities of the demand for imports and exports defined above in the obtained expression.
d. What is the condition under which the derivative is positive? (*i.e.* the trade balance improves as a reaction to an increase in the exchange rate, that is, a depreciation)

*You now have proven the Marshall-Lerner condition: The Trade Balance expressed in domestic currency improves after a depreciation in the exchange rate, if* $\varepsilon + \varepsilon^* > 1$.

***Exercise 10 – The Great Recession***

Table 6 shows growth rates of GDP in the G7 countries during the Great Recession.

10.1. What was the duration and intensity of the recession in the different countries?

10.2. Does the exchange rate regime influence the effectiveness of fiscal vs. monetary policies? Can you link countries' duration of recessions and their ability to carry fiscal and monetary policies?

Table 6: Growth rate of GDP (% change, constant prices)

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|
| Canada | 2.063 | 1.000 | -2.95 | 3.083 | 3.141 | 1.746 |
| France | 2.361 | 0.195 | -2.941 | 1.966 | 2.079 | 0.183 |
| Germany | 3.370 | 0.816 | -5.563 | 3.945 | 3.718 | 0.689 |
| Italy | 1.474 | -1.050 | -5.482 | 1.687 | 0.577 | -2.819 |
| Japan | 1.654 | -1.093 | -5.417 | 4.192 | -0.115 | 1.495 |
| United Kingdom | 2.556 | -0.627 | -4.328 | 1.915 | 1.509 | 1.313 |
| United States | 1.779 | -0.292 | -2.776 | 2.532 | 1.602 | 2.224 |

*Source*: World Economic Outlook Database, 2017. Access: Nov. 29, 2017

***Problems***

- Chapter 7, Problem 5 (IS/LM/FX, mechanics)
- Chapter 7, Problem 9 (IS/LM/FX, numerical example)

***Literature:*** Feenstra & Taylor (2017), Chapter 7

***Pre-discussion:*** Tasks 6

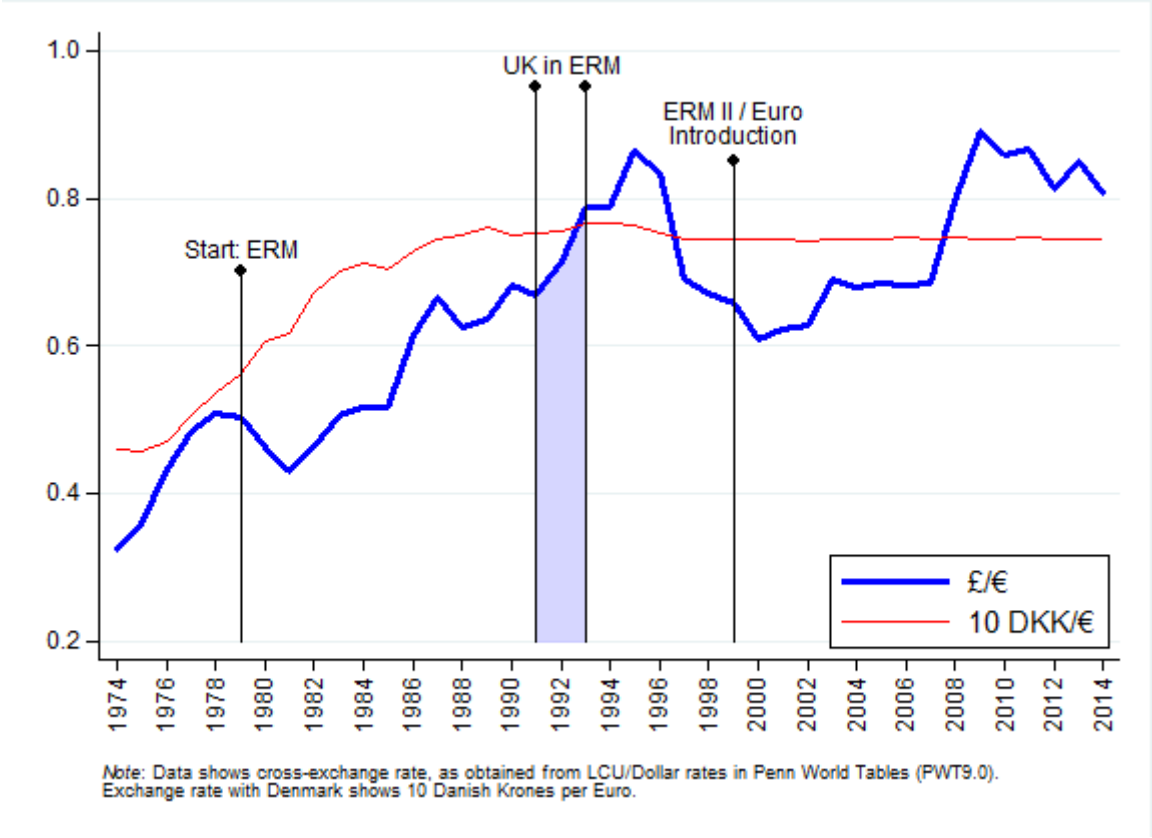
## 3.8. MEETING 8

**Task 6: A Fixed or Floating Exchange Rate?**

***Discussion:*** Europe seems to be an ideal laboratory for exchange rate experiments. Some countries, like Britain, have a floating exchange rate. Denmark, on the other hand, has pegged its currency against the Euro. The ultimate fixed exchange rate is the Euro, which is now the common currency shared by 19 European countries.

History provides us with an even richer perspective. The common Euro was preceded by a system of fixed exchange rates, called the Exchange Rate Mechanism (ERM). Denmark joined this system from its beginning in 1979, although it realigned its Krone several times during the early phase of the ERM. Britain, for most of the time since 1975, has had a floating exchange rate. Figure 8 below shows the evolution of the Euro exchange relative to the two countries' respective domestic currencies.

Figure 8: Historical exchange rates of the British Pound and Danish Krone, 1974-2014




*Note*: Data shows cross-exchange rate, as obtained from LCU/Dollar rates in Penn World Tables (PWT9.0). Exchange rate with Denmark shows 10 Danish Krones per Euro.

What drives countries to decide whether they should have a fixed exchange rate? Is this an economic decision, *i.e.*, one of comparing measurable benefits and costs, or is it purely a political decision, on which economists have no advise to offer? Currently, it seems as if the UK's decision not to join the Euro was a very good one. But, at the time when the Euro was established, was there any economic logic for the UK (and Denmark) not to join? On the other hand, the British tried a fixed exchange rate, briefly, when the Pound was a member of the ERM in 1992 and 1993, but did not succeed in maintaining the peg. Was that episode in European monetary history an embryonic version of today's trouble?

***Exercise 11 – Currency peg and monetary policies***

The Danish krone is currently pegged to the Euro. Using the IS-LM-FX model for Home (Denmark) and Foreign (Eurozone), illustrate how each of the following scenarios affects Denmark

a. The Eurozone reduces its money supply.
b. Denmark cuts government spending to reduce its budget deficit
c. The Eurozone countries increase their taxes

***Problems***

- Chapter 8, Problem 4 (symmetry-integration diagram)
- Chapter 8, Problem 6 (fixed vs floating)
- Chapter 8, Problem 7 (fixed vs floating, numerical example)

***Literature***: Feenstra & Taylor (2017), Chapter 8

***Pre-discussion:*** Tasks 7 and 8

## 3.9. MEETING 9

**Task 7: Is the Euro an Optimum Currency Area (OCA)?**

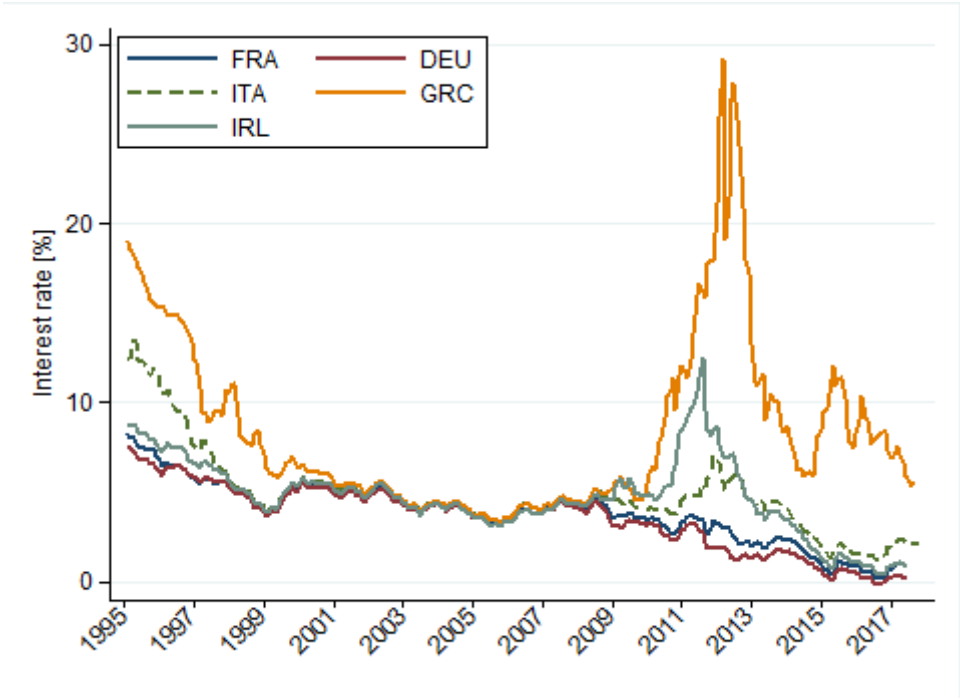
***Discussion:*** The theory of OCAs states that when two countries share common shocks and are integrated, it is beneficial for them to form a currency area. In principle, these criteria the same as those considered for a fixed exchange rate regime to be favourable. Yet, in practice, they are relatively generic, as are thresholds an ideal OCA should pass. Possibly, even far-reaching political and institutional alignments may not be sufficient. On the other hand, an OCA might be self-fulfilling.

The Eurozone constitutes the most prominent example of a currency union. Its qualification for an OCA is, however, disputable. While the first years after introduction of the Euro supported optimists, early ERM experiences and global financial imbalances in 2007, and after, raise scepticism. Besides assessing Eurozone members' characteristics, implementation and rules of a monetary union are important. The Maastricht Treaty, the Stability and Growth Pact, and the European Central Bank constitute the main pillars of the European monetary integration process. Their specific design might have contributed to recent economic and political developments.

***Exercise 12***

Figure 9 depicts monthly information of government bond rates from the IMF International Financial Statistics Database. The period we observe starts soon after the Maastricht Treaty and ends in October 2017. Analyse and explain the different paths for the 5 countries. Was Ireland an early suspect?

Figure 9: Monthly interest rates on government bonds in percent, selected Eurozone countries




***Problems***

- Chapter 10, Problem 3, 5, 8, and 9 (OCAs)

***Literature***: Feenstra & Taylor (2017), Chapter 10

## 3.10. MEETING 10

**Final team-project presentations**

## 3.11. MEETING 11

**Final meeting:**

- Recap