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Econ 422  
Fall 2016  
TR 9:30-10:45  
Monroe 124

## **International Finance and Macroeconomics (Econ 422)**

An alternative name for the course is “open economy macroeconomics”. The course is different from a macroeconomics course in that all the emphasis will be on open economy aspects: the trade balance, international capital flows, exchange rates, international financial crises. The course is also different from an international trade course in two ways. First, we will not assume that trade is balanced. In fact, it is exactly trade imbalances, financed by international capital flows, which are of interest in this course. Second, the focus is on macro questions.

### **TEXTBOOK**

There is no required textbook. All the lecture notes are typed up and will be posted on the course web site. While I will not follow a textbook, I would like to suggest two good textbooks as additional (suggested, not required) reading material:

Melitz, Marc J., Maurice Obstfeld and Paul R. Krugman, “International Economics” Addison Wesley, 10th edition, 2014.

Feenstra, Robert C. and Alan Taylor, “International Economics,” Worth Publishers, fourth edition, 2017.

For both textbooks the first half is international trade (Econ 411) and the second half international macro (Econ 422). So only read the second part. Both of these books have lots of nice applications. I do not use them though because I do not quite like their treatment of models and because there are many topics that I want to cover that are not in these books.

You are also strongly encouraged to read articles in VOX (<http://www.voxeu.org/>), which cover current policy issues with analysis that is based on economic research. This gives you informed insight into what is going on, which tends to be better than what you can get from newspapers.

## **COURSE WEB SITE**

On the course website I will post this syllabus as well as problem sets and all the lecture notes and Powerpoint files.

## **OVERALL COURSE GRADE**

Problem sets count for 30% of the final grade, the midterm for 30% and the final exam for 40%.

## **PROBLEM SETS**

- There will be four problem sets, evenly spaced through the semester. Problem sets are due in class one week after they are assigned. It is important that you turn them in at the end of the class.
- I will only count the three best problem set grades. As a result, there is no need to give reasons to me for why you did not do a problem set or turned it in late. That one simply won't count.
- For the grader it is preferable that answers to the problem sets be typed rather than handwritten; things like graphs you can draw by hand if you like.
- Please put your full name on the problem sets (and exams as well!). Otherwise it can be a mysterious puzzle to link them to individual students.
- The grader is Ilhan Guner ([ig7xs@virginia.edu](mailto:ig7xs@virginia.edu)). If you disagree with the grading or do not understand why points were taken off, you should first contact the grader. He will let you know by e-mail what times he will have office hours. If you still disagree about grading after talking to him, see me during office hours.

## **EXAMS**

- There will be one midterm exam, on October 18, which will be in class. The midterm exam covers all materials up to the date of the exam. There will be no make-ups.
- The final exam will be on December 13, 2-5. The final exam covers the entire course. There will again be no make-up exams.
- The policy of no make-up exams applies even in cases where there is a very good reason for missing an exam (e.g. sickness, death in the family, etc.). The reason for this policy is that past experience has shown that the demand for make-ups will be high if I allow it as an option, and the scheduling is very complicated.
- If you miss an exam, the grading will be based on the remaining coursework, with a penalty. If you miss the midterm the final grade is (on scale of 0-100):  $(0.4 \cdot \text{average problem sets}) + (0.6 \cdot \text{final exam}) - 5$ . If you miss the final exam the final grade is  $(0.5 \cdot \text{average problem sets}) + (0.5 \cdot \text{midterm exam}) - 10$ . If you miss both the midterm and the final you will get an F irrespective of the problem set grades. If you did an exam, it counts, even if the grading formula would be more attractive if you took the penalty. Although I cannot enforce this, you should always take exams if you are able to. So please avoid strategically missing the final exam if you think this will help with your grade (even after the penalty).

## **DISCUSSION SECTIONS**

There are none.

## **AVAILABILITY**

There are three ways that you can ask me questions outside of class. First, if you have a short question, you can ask me right after class. Second, my office hours are Monday 2-3 and Tuesday 11-12. Third, you can send an e-mail with questions. The third option is only for one or two clearly phrased questions and should not be abused (don't send me a long list of questions). I do not make individual appointments outside of office hours, but will occasionally schedule additional office hours if this is helpful, especially around exam times.

## **OUTLINE OF COURSE**

### **1. Accounting**

#### a. Balance of payments accounting

The balance of payments is a record of all the transactions between the residents of one country and the rest of the world. We will discuss what types of transactions are recorded and how they are recorded. We also discuss some key balance of payments accounting identities that link trade flows and financial flows and which will be critical later on in the course.

#### b. National income accounting

We show that national income accounting implies that the current account is equal to national saving minus investment.

#### c. National Intertemporal Budget Constraint

We show that a country's net external debt is equal to the present discounted value of future trade surpluses plus future excess returns on external assets relative to liabilities. In other words, if you have a debt you can pay it back by either running future trade surpluses (exporting more than you import) or earning more on your claims on other countries than you pay on your external liabilities.

#### d. Evidence from the United States

Here we discuss data for the United States related to balance of payments and national income accounting. We discuss three ways of looking at the current account (exports minus imports; net capital outflows; saving minus investment). We discuss reasons for the large U.S. current account deficit. We also discuss what has happened to the current account and capital flows during the 2007-2008 international financial crisis. Finally, we discuss what role global imbalances, and particularly the U.S. current account deficit, have played in causing the 2007-2008 crisis.

## 2. Exchange Rates

#### a. Exchange rate determination: role of trade flows and capital flows

We start with a very simple demand and supply analysis of the foreign exchange market. We discuss how supply and demand for foreign exchange are driven by trade and capital flows. Later on (section 2c and section 4) we will explicitly model these trade and capital flows in order to understand how exchange rates are determined in a general equilibrium framework.

#### b. Foreign exchange market at an institutional level

We discuss how the foreign exchange market operates at an institutional level: who are the traders, where and when does trade take place, how does trade take place, why is the trading volume so high, what are the different types of instruments (spot, forward, futures, option contracts)

#### c. Exchange rate, prices and trade

The exchange rate impacts the economy by affecting asset returns and relative prices. In this section we focus on the impact on relative prices. Changes in the exchange rate affect the price of imported relative to exported goods, which in turn affects exports and imports and the trade balance.

#### d. Nominal versus real exchange rate

The real exchange rate is the ratio of the foreign to domestic consumer price index. It is a measure of the relative cost of living. We discuss what determines the real exchange rate and why there is a very close link between the nominal and the real exchange rate.

### 3. How integrated are international financial markets?

#### a. Evidence from interest rate parity

We discuss covered interest rate parity (interest rate arbitrage with exchange rate risk hedged through the forward market). We discuss under what conditions covered interest rate parity does not hold. We provide evidence of deviations from covered interest parity in industrialized countries due to capital controls (in the 1960s, 70s and 80s). We also discuss evidence of large deviations from covered interest rate parity during the recent financial crisis, which was due to counterparty risk

#### b. Evidence from international portfolio diversification

We discuss evidence of portfolio home bias, especially in the stock market, and discuss reasons for this home bias.

#### c. Evidence from saving-investment relationship

We discuss evidence that high domestic saving rates usually also imply high domestic investment rates, suggesting that most of the saving is channeled through financial markets to finance domestic rather than foreign capital accumulation. This is consistent with the portfolio home bias.

### 4. Open economy model of exchange rate, output, capital flows, interest rate

#### a. Fixed and floating exchange rate regimes without capital mobility

The models used in the course are general equilibrium models. This is critical since partial equilibrium reasoning, while it often sounds reasonable, is generally seriously flawed. In this section we start with a model in which there are no international capital flows. We first consider a simple setup in which there are only two markets: the goods market and the foreign exchange market. We then add the money market. We consider the operation of both fixed and floating exchange rate regimes in this environment without capital mobility. We discuss the impact of monetary and fiscal policy and the transmission of shocks across countries.

#### b. Fixed and floating exchange rate regimes with capital mobility (Mundell-Fleming model)

We next introduce capital flows to the model, which are an important (actually the most important) component of demand and supply for foreign exchange. We again discuss the impact of monetary and fiscal policy under fixed and floating exchange rate systems. One of the key results is that a country will no longer have control over its monetary policy if it adopts a fixed exchange rate system and there is a

high degree of capital mobility. That is why fixed exchange rate systems usually do not last long. They often end in a currency crisis. In this context we will discuss the collapse of the postwar monetary system (Bretton Woods) in 1973 and the currency crisis in Europe in 1992/1993.

c. Transmission of shocks across countries

We discuss how shocks are transmitted across countries under perfect capital mobility. We show that under both fixed and floating exchange rate regimes the transmission will be very different than under no capital mobility.

d. Exchange rate determination in a dynamic environment

The models discussed so far are static models where everything happens immediately. In reality the exchange rate is determined within a dynamic environment and will depend like any asset price on expectations about the future, e.g. the future growth rate of the economy or future monetary policy. In this section of the course we will discuss such dynamic models, both with flexible and sticky prices.

e. Exchange rate puzzles: Meese-Rogoff puzzle and forward discount puzzle

In this section we discuss two exchange rate puzzles: the Meese-Rogoff puzzle and the forward discount puzzle. The Meese-Rogoff puzzle is essentially an exchange rate disconnect puzzle. We show that the exchange rate is not closely connected to observed macro fundamentals (in contrast to our models, where the exchange rate is entirely determined by macro fundamentals). We will discuss various reasons for this. In particular, information heterogeneity among investors goes a long way to explain the evidence. The second puzzle, the forward discount puzzle, says that when the interest rate on a currency is high relative to other currencies, it tends to appreciate. This implies that investors can make money by investing in high interest rate currencies: not only do they earn a higher interest rate, the currency also tends to appreciate. We will discuss various explanations for this puzzle.

## 5. Financial Crises

a. Emerging market crises

Since 1995 many emerging markets have been hit by currency crises (Mexico, Brazil, Argentina, Russia, Korea, Thailand, Indonesia, Phillipines, Turkey). Mostly these currency crises were different from old fashioned ones where a country adopts a monetary policy that is inconsistent with a fixed exchange rate. As a result, many new theories have developed to understand what lead to the currency crises in these countries. We will discuss theories for why these crises happened

and how they spread across countries. We also discuss the best policy to prevent these crises and to respond to crises when they happen.

b. 2007-2008 global financial crisis

In this last section of the course we discuss the 2007-2008 global financial crisis. Large mortgage market losses lead to a sharp drop of the net worth of highly leveraged financial institutions, particularly in the shadow banking system (broker-dealers, hedge funds). This significantly reduced their ability to borrow (in the repos market and commercial paper market), leading to a large sell-off of assets, even good assets. We discuss how the financial crisis has led to a recession and why the recession was global in nature, with a similar decline in business cycles and asset prices all across the globe.

c. European Debt Crisis and the Euro

We start with a discussion of European Monetary history from the late 1960s through 1999. This includes particularly the European Monetary System (1979-1999). This is followed by a discussion of the pros and cons of monetary unions. We address whether the choice of Europe to form a monetary union was a wise one by drawing comparisons to the United States. We finish with a discussion of the European Debt crises that started in the Spring of 2010.