

Chapter 21 Interest Rate Parity

Question 21.4

Suppose you have a hundred euros and you know that the inflation rate will be 5% the coming year.

- 21.4A Would you lend your money to somebody who promises to give you 103 euros back after one year?
- 21.4B How many euros do you at least want to receive back after one year?
- 21.4C Taking into account your answer at 21.4B, what is the real and the nominal interest rate you demand?
- 21.4D Do you think you will ever demand a negative real interest rate, whatever the rate of inflation may be? Explain.
- 21.4E Explain whether you will ever demand a negative nominal interest rate.

Question 21.5

On the 21st of June 2004 an article was published on the BBC News website about the appreciation of the Japanese yen against the US dollar. We have selected the following excerpt:

Japan's shares and yen strengthen

Japanese share prices surged upwards on Monday, and the yen hit a six-week high against the US dollar. Traders said optimism about Japan's economic growth was fuelling demand for stocks among foreign investors, who were therefore buying yen.

Although economists anticipate the US central bank will deliver a rise in interest rates on 30 June, traders said currency markets have largely factored this in after months of rumour and expectation. "Expectations for strong US growth have become old news and the outlook for Japan's solid economic recovery now looks

fresher," said an UFJ Bank currency trader.

Source: news.bbc.co.uk

21.5A Explain with the uncovered interest parity condition how a rise in share prices can lead to an appreciation of the yen against the dollar.

21.5B Motivate why an expected increase in the US interest rate does not lead to an appreciation of the dollar in the excerpt above.

Question 21.6

Also taxes play a role when considering the interest parity condition.

21.6A How does a proportional tax on foreign exchange transactions alter the interest parity condition?

21.6B How does a flat tax per transaction affect the interest parity condition?

21.6C Which type of investor would prefer the proportional fee and which type of investor the flat fee?

Question 21.7

In the main text three possible investment strategies are described. In this question we will calculate the return on the three options from the eyes of an American investor who is considering buying either one-year US government bonds or one-year Canadian government bonds. The three options he considers are:

I. He can purchase one-year US government bonds.

II. He can exchange his American dollars on the spot exchange market to Canadian dollars, buy one year Canadian government bonds and buy a forward contract to secure the exchange rate of his Canadian dollars to US dollars one year ahead.

III. He can exchange his US dollars on the spot exchange market to Canadian dollars, buy one year Canadian government bonds and exchange his Canadian dollars after one year back to US dollars on the spot exchange market.

The [data file of question 21.7](#) offers you daily data on the annual yield of the government bonds, the spot exchange rate between the two dollars and the one-year forward rate from 1995 to 2004. With this dataset you will be able to calculate the ex post return of these three strategies. Calculate these returns for every day available in the dataset and plot the returns of these three strategies in a diagram with the different days on the horizontal axis. Which option should the American investor choose? Explain why.

Question 21.8

Paragraph 21.4 of the textbook gives a rough idea of the empirical validity of the covered interest parity condition. Let's do the same test for the US and Canada. The [data file of question 21.8](#) contains data on the daily yield for 1 month, 3 months, 6 months and 12 months treasury bills from the US and Canada from 1995 to 2004. The daily spot exchange rate between the Canadian and US dollar and the different forward rates are also available.

21.8A Produce four scatter diagrams that show on one axis the return on investing in US treasury bills and on the other the return on investing in Canadian treasury bills. Of course both returns should be calculated in a common currency. Does the covered interest parity hold according to your graphs?

You can also test the covered interest parity condition with a regression analysis. The typical test of the covered interest parity condition is based upon the following regression:

$$\frac{F_{Can\$/US\$}}{S_{Can\$/US\$}} = \alpha + \beta \frac{(1 + r_{ca})}{(1 + r_{US})}$$

In which F is the forward exchange rate, S the spot exchange rate and r the yield of a treasury bill over

the period considered.

21.8B What values should α and β have for the covered interest parity condition to be empirically validated?

21.8C Check with a regression analysis whether the covered interest parity holds empirically. What do you conclude?