1 Introduction

1.1 Overview

In the lab, you will use Bloomberg to explore issues concerning carry trade and interest rate parity. You will explore:

- Uncovered carry trade and uncovered interest rate parity
- Covered carry trade and covered interest rate parity
- Forward and forecast: expectation for FX rate

A carry trade is defined as the investment strategy that borrows in a low interest rate currency and uses the funds to purchase a high interest rate currency, to take advantage of interest rate differences.

Take an instance, an U.S. investor who borrows EUR at a low interest rate and invests the funds in a USD-denominated bond at a higher interest rate. Eventually the USD bond matures or is sold, and the USD proceeds are exchanged for EUR so the EUR borrowing can be repaid. If the investor also purchases/sells a forward contract to hedge the foreign exchange risk, this investment strategy is called a covered carry trade; if not, the investment strategy is called an uncovered carry trade.

In the case of an uncovered carry trade, the investor obviously faces foreign exchange risk. If the EURUSD exchange rate increases, i.e. the currency EUR appreciates, the investor would need to exchange more USD into EUR to repay the debt. If the foreign exchange rate increases far enough, the investor could even lose
money in the carry trade.

It is a good idea for you to work through the carry trade profit calculation to see this analytically. The uncovered carry trade we described above has several specific steps:

- Borrow the present value of one unit of “foreign” currency\(^1\),
- Change it into home currency,
- Invest at the home currency interest rate
- Obtain the future value of the investment later, at maturity or whenever the trade is closed out,
- Change the proceeds back into the foreign currency, and
- Repay the loan.

The cash effects, step by step are:

- \(\frac{1}{(1+r_f)^t}\), where \(r_f\) is the foreign currency interest rate,
- \(e_0\), where \(e_0\) is the exchange rate today in the sense of the price of the foreign currency (how many USD it costs to buy one EUR, for example, or how many USD to buy one JPY),
- \((1 + r_h)^t\), where \(r_h\) is the home currency interest rate,
- \(\frac{1}{e_t}\), where \(e_t\) is the (unknown) future exchange rate that will hold at time \(t\) when the carry trade is “unwound”,
- -1, the unit of foreign currency that must be repaid.

Putting it all together we have the profit from the uncovered carry trade, which can be positive or negative depending on whether \(e_t\) turns out to rise a lot above \(e_0\) or not:

\[
U_{coveredCarryProfit} = \frac{1}{(1+r_f)^t} \times e_0 \times (1 + r_h)^t \times \frac{1}{e_t} - 1
\]

\(^1\)The terms “home” and “foreign” are just to differentiate one currency from the other; they could be any two currencies that you happen to be working with
The investor could enter into a foreign exchange forward contract to hedge the foreign exchange risk. If, at the outset, the investor contracts to exchange the USD proceeds for EUR in the future at a specific specified foreign exchange rate, the investor will not suffer from the foreign currency appreciation. Of course, if the EUR is expected to appreciate, the market would probably price that into the terms of the forward contract (i.e., the investor would get a worse forward exchange rate on her USD). (More on that in some later paragraphs.)

This simple trading scheme adds no obvious social value: you are just moving money, not inventing some useful product! Any winnings for the investor in the trade described above mean losses for a counterparty. If uncovered carry trades make money for the investor now and then, well, that’s just chance. If they make money for her consistently, one of her counterparties seems to be offering terms on interest rates or exchange rates or both that are just too good. It seems uncovered carry trades should have zero profits on average.

With covered carry trades, even the potential for change profits seems slim. The terms of all the payments in the covered carry trade are stated at the beginning. Why would any counterparty do even a single trade that is sure to lose money? A profitable covered carry trade is arbitrage opportunity. To find profitable arbitrage opportunities in such a simple trade, it seems the investor would have to be very lucky indeed (i.e., lucky enough to find a really careless person for a counterparty).

Consider the implications of the idea that uncovered carry trades make no profit. For convenience, suppose that interest rates are set according to loan fundamentals and do not change with carry trade supply and demand pressures. Then “uncovered carry trades make no profit” means that the spot exchange rate has adjusted to a level where traders have no incentive to do a carry trade, and also no incentive to do a “reverse” carry trade in the other direction. We call the situation “uncovered interest rate parity.” Uncovered interest rate parity holds when

\[
\frac{\bar{e}_t}{e_0} = \frac{(1 + r_h)^t}{(1 + r_f)^t},
\]

where all variables are defined as above and \(\bar{e}_t\) is the expected value of the foreign currency after \(t\) time into the future. You should check to be sure you see that the uncovered interest rate parity equation is what is required for the expected value of \(UncoveredCarryProfits\) to be equal to zero.
If we believe that uncovered carry trades should be expected to earn zero profit, i.e., the uncovered interest rate parity reasoning is valid, then we should expect low interest rate currencies to appreciate and high interest rate currencies to depreciate.\textsuperscript{2}

Next consider the implications of the idea that a covered carry trade makes no profit. This implies that (foreign exchange) forward rates will be set to satisfy the covered interest rate parity condition
\[
\frac{f_{0,t}}{e_0} = \frac{(1 + r_h)^t}{(1 + r_f)^t},
\]
where \(f_{0,t}\) is the forward rate.\textsuperscript{3} The forward rate today (time 0) sets the terms of an exchange that will take place later (after \(t\) time units have passed). This rate states the number of units of home currency that must be paid in order to receive one unit of foreign currency. If the forward rate is \textit{not} set to satisfy the covered interest rate parity equation, there would be an arbitrage opportunity. Note that such arbitrage opportunities, if they exist, would be a powerful incentive to exchange currencies and for banks to re-adjust their forward rates.

According to covered interest rate parity, high interest rate foreign currencies should sell at a “forward discount,” and low interest rate currencies are expected to sell at a “forward premium” as compared to the spot rate of exchange. If the forward rate (i.e., in the sense of the forward price of the foreign currency) is too low, then the covered carry trade would be profitable. In addition, if the forward rate is too high, the investor can profit from a reverse carry trade. For instance, following along with the example given at the outset of this discussion, if forward price of EUR were very high, then borrowing in USD when its interest rate is high and using the funds to invest in lower-interest-rate EUR could be a profitable investment (i.e., assuming you also use the forward contract). Covered interest rate parity proposes that the forward rate adjusts to eliminate both types of covered carry trade arbitrage opportunities.

\textsuperscript{2}Behind the scenes in this reasoning is the Fisher effect idea that the reason for a high interest rate is high expected inflation. If, instead, the reason for a high interest rate is a high \textit{real} rate of interest, then \textit{both} the interest rate and today’s currency value would be high relative to those of the other country.

\textsuperscript{3}To obtain this equation, replace \(e_t\) with \(f_{0,t}\) in the carry trade profit formula (to reflect the fact that you are covering the risk with a forward contract), set the expression equal to zero, and re-arrange terms.
Once you understand uncovered and covered interest rate parity, it is not too big a step to put them together. Suppose that both covered and uncovered interest rate parity hold. Then we have \( f_{0,t} = e_t \) and overlinee, correctly predicts the future exchange rate, on average. Therefore, \( f_{0,t} \) also properly predicts the future exchange rate, on average. This is called the unbiased forward rate condition.

Now that you have some basic intuition for carry trades and interest rate parity, you are ready to work through some specific experiments to better understand and to see why the exact equations above are the correct ones.

1.2 Assignment details

As you work through these sections, be sure to prepare a detailed logbook for yourself to contain all the steps and results. Your logbook should be in a spiral bound or similar notebook, used only for purposes of our Labs. You will turn in your logbook after each Lab, and it will be returned to you after each Lab is graded.

You should make and save screenshots of some of the important Bloomberg screens you construct. (In the lab guide, there are tips for you to save the most important screens and you are expected save the minimum set of screenshots.) In your logbook, record the date/time and description (with the Bloomberg Mnemonic where feasible) of all Bloomberg screens used to obtain the specific numbers you rely on for each question below. This allows for your data to be checked later for the professor’s auditing purposes and your review purposes.

When you are finished, use your logbook and the understanding you have developed to prepare a 6-8 page Lab Report for turn-in. Your lab report should carefully and professionally explain what you have done, what you have found, and what your work teaches you about finance. Your Lab Report should be numbered and keyed to the sections and specific items in this Lab Guide.

Your report should contain some Bloomberg graphics to help illustrate your points and show your completion of the lab items. These should be carefully labelled as numbered exhibits and should be placed in an Appendix at the end of your written report. Every Exhibit should be specifically discussed in the text of your report! Do not attach extra pages and pictures that you do not refer to in the body of your report, by specific exhibit number.
You may work through the lab with a partner, and you may turn in a single report for your partner team. Your Lab Report must be typed and carefully edited, and it should conform to professional standards for a business report.

A final note, about this Lab Guide. The Guide gives specific instructions on how to do the experiment, which have been tested on a Bloomberg terminal. Sometimes Bloomberg changes functionality, and the defaults and settings on your account may vary from the account used for testing. Thus, some flexibility and small adjustments on your part may be needed as you work through the Lab Guide.

2 Uncovered carry trade and uncovered interest rate parity

1. In this section, you will assess the actual historical profitability of some uncovered carry trade strategies using the Forward Rate Bias (FXFB) function. Bloomberg uses the term forward rate bias, which seems to involve covered interest rate parity, even though this screen is only about uncovered carry trades.

An uncovered carry trade is essentially a speculative investment, which means that the investor faces risks, such as foreign exchange risk, of earning less profit than expected, or even losing money. Using FXFB, you will back-test some carry trade strategies in which Bloomberg selects three currencies with highest historical interest rates and three with lowest historical interest rates to set up carry trade over a past time period. Bloomberg will calculate the strategy’s historical excess return and standard deviation of the return.

Let’s begin by opening the FXFB function and seeing what’s on the screen.

Command Line. Type FXFB <Go> in the command line. FXFB provides a historical summary of a lot of variations on the uncovered carry trade idea, including ones where you borrow in multiple low interest rate currencies and where you invest in multiple high interest rate currencies. It also pictures many variations as to how long the trade it open and the conditions under which it is unwound. It can also evaluate strategies where you do not always borrow/lend the same currency, but choose according to market conditions.
**Top Left.** To begin, select G-10 in the Active Basket yellow box at the top of the screen, which designates the set of currencies involved in your experiment. With this choice, you will be borrowing/investing in only G-10 countries’ currencies. Choose USD as Base Currency in the yellow box right below the Active Basket box. This means that you will evaluate profits and losses in USD terms. Select Buy/Hold as the Strategy for your historical uncovered carry trade experiment in the yellow box below the Base Currency box. This means that your experiment will use simple carry trades of the type we have discussed, i.e., borrow in one currency and invest in another for a fixed period of time without any trading in-between.

**Top Right.** At the right top of the screen, you can specify your time frame setting in the yellow boxes. You should set the most recent and available day as your End Date and five years ago as your Start Date. The three yellow boxes below should be set as Daily, Index and Chart, respectively.

**Middle Left.** At the left middle of the screen, you will have your long and short baskets. On the left side is your long basket, and on the right side is your short basket. To set up the carry trade, the long basket is what you invest in; the short basket is what you borrow. The long basket also shows today’s 3 highest “yielders” (yielder is Bloomberg’s word for the specific currencies that are long or short in your basket) in a descending order, i.e. the currencies that have the highest interest rates. The short basket shows today’s 3 lowest yielders in a descending order, i.e. the currencies that have the lowest interest rates.

Today’s Long Basket and Today’s Short Basket just tell you the currencies that have the highest and lowest yields on the day, the currencies are not necessarily the same as the currencies you invest and borrow throughout the whole investment horizon. On each day in the investment horizon, the currencies with highest yields and with lowest yields on the day are selected to add in the long and short baskets. Once the list of three highest yielders or that of three lowest yielders changes, the long or short basket changes as well. You can hit Currency Basket History tab at the bottom of the screen to explore changes in baskets.

Weight is the currency’s weighting factor in the long/short basket. The default setting for Weights of the yielders are equal. When you see “1” in all the
yellow boxes below Weight, then the long basket and short basket are both equal-weighted, i.e., each yielder in long basket or short basket accounts for 33.3 percent of the basket.

- What yielders are in Today’s Long Basket? What are their yields, respectively?
- What yielders are in Today’s Short Basket? What are their yields, respectively?
- What is a buy-and-hold strategy, as the strategy “Buy/Hold” you have specified in your Strategy yellow box? (Hint: You can google “buy and hold” or find definition of “Buy/Hold” in Bloomberg’s Help page, and find some very useful information)

2. In this item, you will assess the uncovered carry trade by FXFB’s performance analysis. At the bottom of the screen, you will have the panel Buy and Hold Performance Analysis, in which Average Annual Excess Return, Annualized Standard Deviation, and Sharpe Ratio are shown below. Based on the numbers for the four items, you can analyze the investment strategy.

- What is your uncovered carry trade Average Annual Excess Return, i.e. what is the number on the right of the item?
- What is your uncovered carry trade Annualized Standard Deviation?
- What is the definition of Sharpe Ratio? (Hint: Google Sharpe Ratio and find the formula.) What is your uncovered carry trade Sharpe Ratio? How does the Sharpe Ratio help you assess the uncovered carry trade performance?
- How do the four items under Buy and Hold Performance Analysis change, if you increase the Weight for the highest yielder? Are Average Annual Excess Return and Annualized Standard Deviation move in the same direction? How does the Sharpe Ratio change? How do you comment on the result? Is the result in consistence with your finance intuition? Does lower risk lead to higher return?
- How do the four items under Buy and Hold Performance Analysis change, if you increase the Weight for the lowest yielder? Are Average Annual Excess Return and Annualized Standard Deviation move in the same direction? What about the Sharpe Ratio?
3. In this item, you will explore the excess return curve for your uncovered carry trade. On the right top of the screen, you will have the chart view of your uncovered carry trade excess returns. In the chart Cumulative Excess Return, Short Run Avg and Long Run Avg are shown.

- What trend does the Cumulative Excess Return curve show? When does it reach the highest excess return and when does it fall to the lowest excess return? Does the investor profit in the period when the cumulative excess return decreases?
- Does carry trade strategy an arbitrage, based on your assessment on the Buy and Hold Performance Analysis panel? (Is there profit in the strategy, according to your answer for the excess returns, in the previous item?)

An uncovered carry trade should make no profit average, according to uncovered interest rate parity. You should refer to the uncovered interest rate parity in Page 3 and think about the reason why an uncovered carry trade is posited to make no profit on average. At the heart of the reasoning is the idea that the trade involves none of your own money, and so should not expect to earn a time-value of money. It also takes no systematic risk, and so should not expect to earn a risk premium.

But stop and consider an alternative way of thinking. Maybe there are systematic (i.e., non-diversifiable) risks inherent in the uncovered carry trade. Read the Bloomberg article “Managing Carry-Trade Risk” and carefully read the paragraphs after “ACCORDING TO ECONOMIC”. They discuss systematic risks that might link to carry trades. For example, according to the article, investors require compensation for the “crash risk”, a phenomenon in which the market is subject to a sudden downturn. Positive excess returns on average are the compensation for investors who are exposed to the “crash risk” that might wipe them out in a bad time. In addition, currencies with high interest rates might have additional systematic risk as compared to currencies with low interest rates. The difference between the systematic risks might result in difference in risk premiums.

The article also refers to other risks that the investors faces in carry trades. Building on your comprehension and analysis of the article, can you think of any other factors might contribute to an expected risk premium or
excess return in the uncovered carry trade?

3 Covered carry trade and covered interest rate parity

1. A foreign exchange forward is a contract specifying a specific exchange rate for one currency to another currency on a future date. The investor can use the foreign exchange forward to lock the exchange rate in the future and hedge the foreign exchange risk.

In this section, you will learn how to do your covered carry trade.

*Command Line.* Type FXFA <Go> in the command line to enter the FX-Interest Rate Arbitrage. You can use FXFA Bloomberg function to analyze passive arbitrage opportunities.

*Top Left.* Select Same-currency gray tab at the top of the screen, which means you are doing your covered carry trade by borrowing in only one currency and investing in another one currency. Specify Currencies, which are right below, as EUR and USD, with EUR in the left yellow box and USD in the right yellow box. You are borrowing EUR and investing USD. Uncheck the “via” box on the right. Px Source is BGN. You should use FX Swap as Imply, so the foreign exchange forward rates are calculated in the table. (“FX swaps” does not refer to currency swaps, even though the terms sound similar. The pricing given by the FX swaps function in Bloomberg is actually the forward rate.)

*Top Right.* On the right top of the screen, check only Show Outrights box, which mean the outright implied foreign exchange forward rates are shown.

*Middle.* The table below shows the terms, dates, foreign exchange forward rates and interest rates on loan for the arbitrage. The table is divided into two parts. On the left-hand side of the screen, you are borrowing euros and investing in US dollars, i.e. this is a carry trade for US dollars. It is also a reversed carry trade for euros. Bloomberg shows the reversed carry trade for US dollars in the right-hand side screen.
The “Term” column gives the term of the loans and the foreign exchange forward. The “Date” column shows the corresponding date for the term.

On the left-hand side of the screen, the “FX Swap Bid” column shows you the (actual) bid foreign exchange forward rate, the “EUR Ask” column gives you the EUR ask interest rate on loan, the “USD Bid” column shows the USD bid interest rate on loan, “FX Swap Bid Implied” gives the implied bid foreign exchange forward rate and “FX Swap Bid Spread” shows you the spread between the implied bid foreign exchange forward rate and the (actual) bid foreign exchange forward rate. (The ask rate is the interest rate at which investors can borrow, and bid rate is the interest rate at which investors can lend.)

On the right-hand side of the screen, the “FX Swap Ask” column shows you the (actual) ask foreign exchange forward rate, the “EUR Bid” column gives you the EUR bid interest rate on loan, the “USD Ask” column shows the USD ask interest rate on loan, the “FX Swap Ask” column in the table shows you the implied ask foreign exchange forward rate and the spread between the implied ask foreign exchange forward rate and the ask foreign exchange forward rate, which is in the “FX Swap Ask” column. (Actual) foreign exchange forward rate plus spread is the implied ask foreign exchange forward rate.

You should notice that, in this section, the foreign exchange forward rate is for EURUSD, i.e. the amount of US dollars that can be exchanged for an euro.

The implied forward rate is set as the rate that will exhaust the arbitrage opportunities in the market. For instance, an investor borrows a 6-month EUR loan in the EUR ask interest rate, exchanges the euros for US dollars at the spot foreign exchange bid rate, and invests the funds in a 6-month USD loan at the USD bid interest rate. The investor needs to trade back the USD interest payments into euros to payback the EUR loan in the future, and the amount of euros is determined by the future foreign exchange rate.

The investor may profit/loss in the investment. The implied foreign exchange forward rate is calculated as the rate eliminates the investor’s profit/loss opportunities.
• What is the spot bid foreign exchange forward rate? (Hint: The number in the “FX Swap” column and the “SP” row.)

• What is the 6-month (actual) ask foreign exchange forward rate? (Hint: 6M means 6-month and the number is showed on the right-hand side part.)

• What is the 6-month EUR ask interest rate? What is the 6-month USD bid interest rate? (Hint: They are on the same row as the 6-month bid foreign exchange forward rate.)

• What is the 6-month implied ask foreign exchange forward rate? Is it the same as the 6-month (actual) ask foreign exchange forward rate?

• What is the 6-month spread between the implied and actual ask foreign exchange forward rate?

• Is it there any arbitrage opportunity in this covered carry trade (i.e. no transaction cost and no data delay), based on the actual and implied ask foreign exchange forward rate on your screen (do not conduct the reverse carry trade now)? If your answer is “yes”, write down the steps the investor will take to arbitrage. (Hint: pay attention to the introductory paragraph begins with ”The implied forward rate...”.)

• If your answer to the last question is yes, the covered interest rate parity does not hold (for the covered carry trade). Does covered interest rate parity hold here? (Hint: the most important factor contributing to non-zero spreads in FXFA is data delay. Interest rates and FX swap rates showed in the table are from different sources of information and updated in different frequencies.)

• What factors (except for data delay) might lead to a non-zero spread? How do such factors have impacts on spread? (Hint: What transaction costs might involve in covered carry trades? For instance, except for general transact costs in international trades, banks might need to pay additional taxes on payments to foreign customers. Transaction costs are reduced by economies of scale, i.e., frequently traded financial products have lower transaction cost. As consequence, EURUSD forwards have lower transact cost than USDINR forwards.)

• Forward rate is the unbiased expectation for future spot rate, according to the unbiased expectations hypothesis. If the hypothesis is true, what is your prediction for the spot foreign exchange rate in 6 months? Does
USD depreciate/appreciate in 6 months? (Hint: You should base your prediction on the foreign exchange forward rate)

• Can an above-zero spread eliminate arbitrage profit in a covered carry trade? (Hint: What if the investor do the carry trade in the reverse direction, can the investor profit?)

2. In this item, we will consider the reversed carry trade, i.e. the carry trade for euro.

• What is the spot ask foreign exchange forward rate?
• What is the 6-month bid foreign exchange forward rate?
• What is the 6-month EUR bid interest rate? What is the 6-month USD ask interest rate?
• What is the 6-month implied bid foreign exchange forward rate?
• What is the 6-month spread between the implied and actual bid foreign exchange forward rate?
• Can the investor profit from this reverse covered carry trade? If your answer is “yes”, please write down the steps taken.
• Please notice that, the numbers under the Spread column are in green or in red. The color might give you hints for arbitrage opportunities!

3. In this item, you will learn the implied currency yield. At the right top of the screen, you should change the item in the “Imply” yellow box from “FX Swap” to “EUR Yield”. You will have the implied ask EUR yield in the “EUR Yield Ask Implied” column on the left-side of the table and the implied bid EUR yield in the “EUR Yield Bid Implied” column on the right-side of the table.

The implied EUR yield is the EUR interest rate on loan that will eliminate arbitrage opportunities in the covered carry trade, based on the (actual) foreign exchange forward rate and USD interest rate on loan.

• What is the 6-month implied ask EUR yield?
• What is the 6-month (actual) ask EUR yield? What is the spread between the 6-month implied and (actual) ask EUR yields?
• Can you spot any arbitrage opportunity in the covered carry trade?
- What is the 6-month implied bid EUR yield?
- What is the 6-month (actual) bid EUR yield? What is the spread between the 6-month implied and (actual) bid EUR yields?
- Can you spot any arbitrage opportunity in the reverse covered carry trade?
- (Optional, not required) You will set the item in the “Imply” yellow box at the right top of the screen as “USD Yield”. What is the implied USD Yield Bid? What is the Spread? What is the implied USD Yield Ask and the corresponding Spread? Is there any arbitrage opportunities in the (reverse) covered carry trade? Write down steps to show if there is arbitrage opportunity.

4 Forward and forecast: expectation for FX rate

1. In this section, you will explore and compare forward and forecast. Forward rate is more about interest rate differentials between two currencies than about forecast for spot foreign exchange rate in the future. Forward rates are set by banks so that investors cannot arbitrage from a (reverse) covered carry trade. Forward rates are not necessarily the same as the spot foreign exchange rate in the future.

Command Line. Type FXFC <Go> in the command line. FXFC is Bloomberg’s Foreign Exchange Forecasts function.

Top Left. Click Overview tab at the left top of the screen. You should set Contributor yellow box, which is below the Overview tab, as “Bloomberg Composite”, and Region yellow box as “G10”.

- What is euro’s six-month forecast exchange rate?
- What is euro’s six-month forward exchange rate?
- Are they the same? If not, could you explain? (Hint: First, you should think about the difference between forward and forecast; second, the more a currency is traded, the more liquidity it has and less liquidity premium for the forward contract.)
2. *Optional.* In this item, you should select one currency in FXFC to compare its forecast and forward foreign exchange rates with euro’s. You can have you choice among Asian countries’ currencies by selecting Asia in the Region drop-down list at the right top of the screen, showing forecast and forward foreign exchange rates for China, Hong Kong, Indian, and so on. You have lots of flexibility in selecting the currency, i.e., you can select any currency in FXFC, but you’d better use a less frequently traded currency, such as Indian Rupee.

- What currency do you select?
- What are the currency’s forecast foreign exchange rates on the screen? What trend do they show?
- What are the currency’s forward foreign exchange rates on the screen? What trend do they show?
- Based on your answers for the previous two questions, are the currency’s forecast and forward foreign exchange rates approximately the same?
- Forward rates are set by financial institutions, according to the two countries’ interest rates, so that possible carry trade arbitrage opportunities are exhausted. Forecast rates, in contrast, are the investors’ opinions on spot foreign exchange rates in the future, based on the two countries’ expected economic fundamentals, such as GDP growth, national income and trade balance.

Based on above information, what factors might determine forward foreign exchange rates? (Hint: What are implications of the covered interest rate parity? How to exhaust arbitrage opportunities in covered carry trades?)

- Based on above information, what factors might determine forecast foreign exchange rates? How do each of them help to forecast foreign exchange rates? (Hint: High interest rate currencies are expected to depreciate and low interest rate currencies are expected appreciate, so that investors are indifferent in investing in the two countries. There are other economic fundamentals that might contribute to investors’ forecast.)

- Compare the currency’s and euro’s differences between forecast and forward foreign exchange rates. What factors might contribute to the two currencies’ “difference in differences” between forecast and forward? (Hint: You should find information about country’s and euro’s economic fundamentals and compare them. You can google or use Bloomberg to find the
information. You do not need to write a long analysis article, but you should write down some of your thoughts and ideas with a clear logic.)