

1 Problem 1

The following exchange rates were reported by JP Morgan on 20 September 2007

$$AUD/EUR = 1.26$$

$$USD/AUD = 1.10$$

$$USD/EUR = 1.32$$

Is there any arbitrage opportunity?

2 Problem 2

Suppose your broker gives you the following information

$$\text{Spot exchange rate } USD/EUR = 1.42$$

$$\text{One-year forward exchange rate } USD/EUR = 1.45$$

$$\text{One-year domestic interest rate} = 6.5\%$$

$$\text{One-year foreign interest rate} = 4.5\%$$

- a) Is there any violation of CIP?
- b) How would you take advantage of any arbitrage situation?
- c) What is your profit?
- d) Calculate the forward spread and compare it with the interest rate differential.
- e) Suggest a value for the forward rate consistent with the equilibrium condition.

3 Problem 3

Taking into account ask-bid spreads of interest rates and exchange rates, Covered Interest Parity (CIP) arbitrage is not profitable under which of the following conditions (subscripts a and b stand for ask and bid rates, respectively). i^* refers to foreign interest rate.

$$i.(1 + i_a) \geq (F_b/S_a)(1 + i_b^*)$$

$$ii.(1 + i_b) \geq (F_a/S_b)(1 + i_a^*)$$

$$iii.(1 + i_b^*) \geq (S_b/F_a)(1 + i_a)$$

$$iv.(1 + i_a^*) \geq (S_b/F_a)(1 + i_b)$$

Answers (**your answer must include an explanation with work shown**).

- A) i only.
- B) i and iii .
- C) ii and iii .
- D) ii and iv .
- E) i and iv .

4 Problem 4

US Parent Company A wants to finance a five-year project for its German Subsidiary B which costs €50,000,000. Company A can finance the project in the US capital market by issuing five-year bonds at 6% and convert to euros. However, then the firm is exposed to long-term exchange rate risk.

The current spot rate is \$1.18/€1.00.

Company A could also finance the project in the European capital market but because US Company A is not well-known in Europe, they can only issue five-year bonds at 5%. However, a well-known firm with the same credit worthiness can borrow at 4%.

Now consider a well-known German Parent Company X with the same credit worthiness. It has a US Subsidiary Y with a financing need of \$59,000,000. Company X can finance the project in the European capital market by issuing five-year bonds at 4% and convert to dollars. However, then the firm is exposed to long-term exchange rate risk.

Company X could also finance the project in the US capital market but because German Company X is not well-known in the US, they can only issue five-year bonds at 7%. However, a well-known firm with the same credit worthiness can borrow at 6%.

A swap bank is quoting five-year US dollar (euro) currency swaps at 6.00–6.15 (4.00–4.10) percent against dollar LIBOR flat. The swap bank can deal with US Company A and German Company X separately.

Execute a currency swap. Report

- i) the net cashflows for US Company A, German Company X, and the swap bank
- ii) the savings and earnings for US Company A, German Company X, and the swap bank.