Corp Risk Mgmt Spring 2019

***Homework 3* Solutions**

# Instructions

1. This assignment is due by Monday, May 13, 2019, at noon. You must email your homework to me at wreese@tulane.edu. Please format the file for printing. Please begin the title to your file with your last name.
2. I will post the answers to the homework by Monday the 13th at 5:00 pm to help you study for the Quiz at the beginning of class the following Friday.
3. Give me your answers to each question in a Word or PDF document
4. Send me the Excel spreadsheet where you did your work for Prolems 2 and 3.
5. (30 points) Suppose that you are Treasurer for a large multinational firm based in the U.K. The firm is attempting to raise 100 million euros for 6 years to expand operations in Spain. With the credit crunch, borrowing rates have increased, even with your firm’s good credit. As a result, you find that you have two options:
6. Borrow pounds in the U.K. at 7% and convert them into 100 million euros (the spot rate for exchange is 1 euro = 0.9 pound). As your Spanish subsidiary generates euro revenues, you’ll have to convert them into pounds to pay the interest expense of the debt.
7. Borrow euros in Spain through your subsidiary at 6% (a rate that you suspect may have a premium built into it since you are a foreign company).

A swap bank hears of your borrowing needs and realizes that they have a Spanish client that is trying to launch a project in London that is roughly the size and duration of your expansion plans. This client has the following options:

1. Borrow euros in Spain at 5.5% and convert them into pounds.
2. Borrow pounds in the U.K. through its subsidiary at 7.75%.

Question: The Swap Bank wants to make 250,000 euros and wants to save you and their client the same amount of money (the same as each other). Draw a diagram like we looked at in class showing what currencies at what percentages are transferred among each party in the swap. How much does this swap save your firm in euros? How much does this swap save the Swap Bank’s Spanish client in pounds?

**Problem 1 Solution**

You have an absolute advantage borrowing in Pounds. The Spanish client has an absolute advantage borrowing in Euros. This automatically means that you have a comparative advantage borrowing in Pounds and the Spanish client has a comparative advantage borrowing in Euros.

The difference between the differences is 1.25% (7% - 6% = 1% for you and 7.75% - 5.5% = 2.25% for Spanish client). This means that there is a 1.25% potential gain from the swap as long as each firm wants to borrow in the currency where the other firm has a comparative advantage.

If the Swap Bank makes 250,000 Euros, that is 0.25% of the notional principal of 100 million Euros. That leaves 1.00% to be evenly split between your firm and the Spanish client – which will be 0.50% each.

.5% of 100 million euros is 500,000 euros – this is how much your firm will save

.5% of 90 million pounds is 450,000 pounds – this is how much the Spanish client will save.

You should have drawn a diagram showing the swap bank paying you 7% in pounds and paying the Spanish client 5.5% in euros. You are paying the swap bank 5.5% in euros and the Spanish client is paying the swap bank 7.25% in pounds.

1. (35 pts.) The Eurodollar Futures Contract (for 3-month LIBOR) for settlement on these dates is currently trading at these values:

|  |  |
| --- | --- |
| 1/11/15 | 98.50 |
| 4/11/15 | 98.25 |
| 7/11/15 | 98.00 |
| 10/11/15 | 97.65 |
| 1/11/16 | 97.65 |
| 4/11/16 | 97.35 |
| 7/11/16 | 96.80 |
| 10/11/16 | 96.25 |

Assume that today is Oct. 11, 2014 and that 3-month LIBOR is quoted at 1.45% and the on-the-run two-year Treasury note has a YTM of 1.90%.

You want to engage in a 2-year swap of fixed-rate payments for floating rate payments where the floating rate payments are based on 3-month LIBOR. You are the fixed-rate receiver. The notional principal is $10 million

1. How much money are you scheduled to pay on Jan. 11, 2015 (gross, not net of what you will receive)?
2. Based on the values above, what are the remaining “expected” payments you are scheduled to make during the life of the contract? Hint: Since this is a 2-year swap, there will be eight total payments. You gave me the first one in (a), so now I’m asking for the remaining seven.
3. What is the present value of the eight expected payments (total PV of all eight)?
4. What is the fixed rate which will give you the same present value you calculated above?
5. In basis points, what is the swap spread for this swap?

After one year, the current LIBOR rate is 5.0% and the Eurodollar Futures Contract looks like this:

|  |  |
| --- | --- |
| 1/11/16 | 94.65 |
| 4/11/16 | 94.40 |
| 7/11/16 | 93.60 |
| 10/11/16 | 93.35 |

1. What is the current value of this swap from your perspective?

**Please see the spreadsheet for the solution**

1. (35 points) Revisit the work that we did in class regarding AIFS. What if they choose to hedge different percentages of their base case scenario expenses (25,000 students) with a combination of futures and options. As shown in the template on our class website, they can cover 0%, 25%, 50%, 75%, or 100% of the risk. When they choose to cover, they can do so with combinations of futures and options as shown in the spreadsheet.

Using the template I have provided you with, calculate the positive or negative windfalls for stable dollar, weak dollar and strong dollar assuming:

* 1. 25,000 student demand
	2. 30,000 student demand (but 25,000 were hedged for)
	3. 10,000 student demand (but 25,000 were hedged for)

Look carefully at all three spreadsheets after you have filled them out and make a recommendation for what hedging strategy AIFS should select (how much to hedge and which instruments to use in what proportions. Explain why you feel this is the best route for AIFS.

**Please see the spreadsheet for the solution. Any hedging choice is ok as long as your explanation for it is logical and shows a clear understanding of the risks.**