Introduction

Swaps

- fixed ↔ floating (for the same currency)
- fixed ↔ fixed (for different currencies)
- fixed ↔ floating (for different currencies)
- floating ↔ floating (for different currencies)

Use cases (7.15)

- Liabilities
- Assets

Designing of Swap Contract

Designing of Swap Contract #Question 7.1

- Companies A and B have been offered the following rates per annum on a $20 million five-year loan:

	Fixed rate	*Floating rate*
Company A	5.0%	SOFR + 0.1%
Company B	6.4%	SOFR + 0.6%

- Company A requires a floating-rate loan;
- Company B requires a fixed-rate loan.
- Design a swap that will net a bank, acting as intermediary, 0.1% per annum and
- that will appear equally attractive to both companies.

Designing of Swap Contract #Question 7.3

- Company X wishes to borrow U.S. dollars at a fixed rate of interest.
- Company Y wishes to borrow Japanese yen at a fixed rate of interest.
- The amounts required by the two companies are roughly the same at the current exchange rate.
- The companies have been quoted the following interest rates, which have been adjusted for the impact of taxes:

	Yen	*Dollars*
Company X	5.0%	9.6%
Company Y	6.5%	10.0%

- Design a swap that will net a bank, acting as intermediary, 50 basis points per annum.
- Make the swap equally attractive to the two companies and ensure that all foreign exchange risk is assumed by the bank.

Designing of Swap Contract #Question 7.11

- Companies A and B face the following interest rates (adjusted for the differential impact of taxes):

	Company A	*Company B*
U.S. dollars	Floating + 0.5%	Floating + 1.0%
Canadian dollars	5.0%	6.5%

- Assume that A wants to borrow U.S. dollars at a floating rate of interest and
- B wants to borrow Canadian dollars at a fixed rate of interest.
- A financial institution is planning to arrange a swap and requires a 50-basis-point spread.
- If the swap is equally attractive to A and B, what rates of interest will A and B end up paying?

Designing of Swap Contract #Question 7.19

- (a) Company A has been offered the swap quotes in Table 7.4.
  - It can borrow for three years at 3.45%.
  - What floating rate can it swap this fixed rate into?
- (b) Company B has been offered the swap quotes in Table 7.4.
  - It can borrow for five years at floating plus 75 basis points.
  - What fixed rate can it swap this rate into?
- (c) Explain the rollover risks that Company B is taking.

Table 7.4 Example of bid and ask fixed rates in the swap market for a swap where payments are exchanged quarterly (percent per annum).

Maturity (years)	*Bid*	*Ask*	*Swap rate*
2	2.97	3.00	2.985
3	3.05	3.08	3.065
4	3.15	3.19	3.170
5	3.26	3.30	3.280
7	3.40	3.44	3.420
10	3.48	3.52	3.500

(skip) Question 7.15, 7.8, 7.22

Discussion

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Discussion #Question 7.5

- Explain the difference between the credit risk and the market risk in a swap.

Discussion #Question 7.7

- A bank enters into an interest rate swap with a nonfinancial counterparty using bilaterally clearing where it is paying a fixed rate of 3% and receiving floating.
- No collateral is posted, and no other transactions are outstanding between the bank and the counterparty.
- What credit risk is the bank subject to?
- Discuss whether the credit risk is greater when the yield curve is upward sloping or when it is downward sloping.

Discussion #Question 7.13

- “Nonfinancial companies with high credit risks are the ones that cannot access fixed-rate markets directly. They are the companies that are most likely to be paying fixed and receiving floating in an interest rate swap.”
- Assume that this statement is true.
- Do you think it increases or decreases the risk of a financial institution’s swap portfolio?
- Assume that companies are most likely to default when interest rates are high.

Discussion #Question 7.14

- Why is the expected loss to a bank from a default on a swap with a counterparty less than the expected loss from the default on loan to the counterparty when the loan and swap have the same principal?
- Assume that there are no other derivatives transactions between the bank and the counterparty, that the swap is cleared bilaterally, and that no collateral is provided by the counterparty in the case of either the swap or the loan.