

CH. 14 INTEREST RATE AND CURRENCY SWAPS

* INTEREST SWAPS: Interest payments based on a “notional principal” exchanged between two counterparts periodically. A typical interest rate swap (plain vanilla) has a fixed payment on one party and a variable payment based on an index rate (LIBOR) for the other party.

- EXAMPLE: Assuming the notional amount of \$100m

Co. A is funding a fixed-rate investment yielding 13.25% by a floating rate loan, $\text{Libor} + .5\%$

Co. B is funding a loading-rate investment, $\text{Libor} + .75\%$ by a 11% fixed-rate loan.

=> Both of them have mismatches (variable revenue and fixed rate funding or switched) and exposed to interest rate risks as a result.

=> Diagram showing the mutually agreeable swap rate range

=> Both may be interested in a swap deal that results in positive locked-in spreads. For examples, Co. A offers Libor for say 11.5% to B.

A Swap Bank may engage in a swap deal

=> How about the Bank offers 12% for $L\%$ to Co. A? Is the bank exposed to the interest rate risk? What if the Bank also has a swap deal, say 11% for $L\%$ to Co. B?

* Risks in interest rate swaps – Basis, Credit

* Pricing factors: prevailing current and expected future interest rates, availability of counterparties, your risk aversion, credit risk, etc.

* Interest rate swaps can be used to reduce the costs of funding. See p.333 example. In this case, you need to identify the comparative advantages. Co. A has $L+1\%$ revenue which can be financed by 10% or $L\%$, while Co. B has 13% project funded by 11.25% or $L+.5\%$. QSD(quality spread differential)?

=> First of all, note that Co. A is financially stronger than Co. B as their interest rates are lower (both fixed and variable). Without a swap, Co. A may prefer $L\%$ variable rate loan to match with its variable revenue and Co. B may prefer 11.25% fixed rate loan to avoid the interest rate risk. Knowing that Co. A is especially stronger in the fixed rate loan (1.15% difference as opposed to 0.5% difference), you may want to suggest both companies to choose the loan type where it has a comparative advantage. If Co. A takes a fixed, its spread becomes $L-9\%$, while Co. B's spread becomes $-L+12.5\%$. Knowing that the gap between the fixed and variable rates for each company is $10-L$ for Co. A and $11.25-(L+0.5)=10.75-L$ for Co. B, you may want to suggest a swap rate between 10% and 10.75% (0.75% is called Quality Spread Differential (QSD). If you have a sway rate, say,

at 10.5%, then the locked-in-spread for Co. A becomes 1.5% (which is larger than 1% when they choose to have the L% variable rate loan) and Co. B has 2% (which is greater than 1.75%). Both companies benefit from the swap deal as both spreads increase.

* CURRENCY SWAPS

Example: Co. A has \$10m project financed by 5m BPs (it could be a British company trying to set up a US operation), while Co B has 5m BP project financed by \$10m. The returns on the both projects are 10% and the costs of funding are 7%. Set the swap rate at say \$2/BP, both companies are expected to enjoy positive profits.

In terms of revenues and costs of financing for both projects, Co. A has \$1m revenue (10% of the project) and the cost of funding 350,000 BPs, while Co. B has 500,000 BPs with the cost of funding \$700,000. Both companies have mismatches and are exposed to exchange rate risks. Here, you may propose a currency swap for exchanging, for example, 350,000 BPs for \$700,000 (or \$2/BP). If that happens, Co. A will receive 350,000 BPs, which they can use to cover its cost of funding and Co. B will receive \$700,000, which they can use to cover its \$700,000 cost of funding each period. In other words, each company is taking care of its counterpart's cost of financing (\$ and BP payments which would match their own revenues) and do not need to worry about its own. The net results are Co. A has fixed spread of \$300,000 and Co. B has fixed spread of 150,000 BPs.

* Debt for Equity Swap pp. 276-278

MNC purchases LDC debt (e.g., \$100m Mexican government debt) for say, \$60m (40% discount from the face value). The Central Bank of Mexico buys back the debt at say, 80% of the face value (by printing money). The MNC has \$80 worth of Mexican pesos and invested in Mexico.

Background information: Latin America's LDC debt crisis began in 1982 when Mexico government asked US and other foreign banks to forgive \$68 billion in loans. Soon Brazil, Argentina and other Latin American countries followed. The source of the international debt crisis was oil as its drastic price change had negative impact on the world economy.

If the debt had been denominated in a local currency (here, MP), the crisis would not happen. However, the debt was denominated in the US dollars and Mexico could not secure US dollars to make the payments.

Who benefits from the debt for equity swap? All three parties. The creditor bank could get an unproductive loan off its books and a portion of the principal repaid. They could work as a market maker to earn fees or the spread. The LDC benefited from being able to pay off a "hard" currency loan (at a discount) and the new productive foreign investment made in the country. The MNC, equity investor benefited from the purchase of LDC local currency needed at a discount from the current exchange rate.

Any problems? An arbitrage opportunity exists with different exchange rates between the FX market rate and the rate created by the debt for equity swap. For example, a local company (Mexican) can start with a sum of the local currency (MPs) and have the money converted to a hard currency (US\$s). The company then buys the LDC government debt at a discount, then get more MPs. The other issue is that the an increase in the LDC money supply could cause an inflation. The LDCs have only allowed swaps for "productive" business projects.