

BFC5914 Bank Lending: Solution Guide to Tutorial 10

Q.1 Explain how the asset swap arbitrage works and provide an example using the following instruments/rates:

5- year fixed bond rate of 6%

5-year FRN yield of LIBOR +35bps

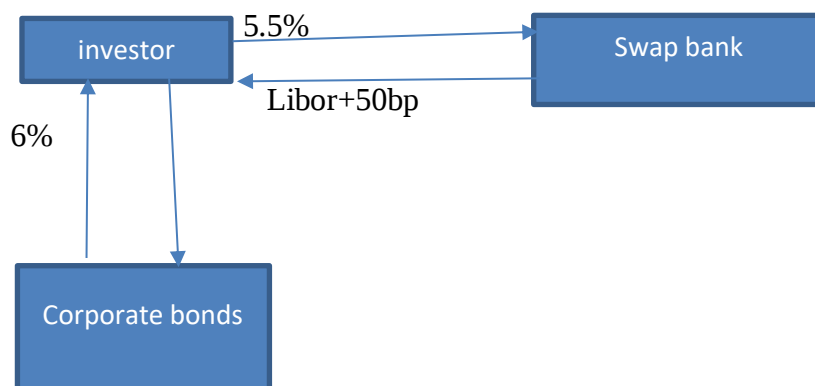
5-year swap rate of LIBOR +50bps

The asset swap arbitrage works when an investor can create a synthetic floating-rate asset through a combination of a fixed-rate bond and an interest rate swap at yield levels that are more attractive than a straight investment in a floating-rate asset (or vice-versa in the case of a synthetic fixed-rate asset).

In this example the investor can receive 6% by investing in the bond directly and can swap the fixed coupon for LIBOR flat in the swap market at a level of 5.50%; this allows it to create a synthetic floating-rate asset at a gross pickup of 50bps. If it were to buy the FRN directly in the market and fund at LIBOR flat, it would earn 35bps running; the synthetic asset swap arbitrage therefore yields an incremental yield of 15bps running.

Here is the explanation.

LIBOR flat is often used in interbank lending and interest rate swap contracts. It refers to the LIBOR rate with no additional spread added.



This generates the investor a return rate like holding a floating-rate-note (libor+50bp); and this return rate is higher than the floating-rate-note on the market libor+35bp.

Q.2 Describe how a bank or investor can obtain default protection by using an asset swap switch.

An investor can contract to switch out of an asset swap package of a weaker credit reference in exchange for that of a stronger reference. As the weaker reference deteriorates into a state of financial distress, the investor has an effective put to its switch counterparty; in the extreme, as the reference defaults, the switch counterparty is obliged to accept the defaulted package. Naturally, the investor may have to pay a significant premium for this type of switch protection.

Q.3 In what way is a CDS different to a conventional OTC swap contract? Describe a more appropriate analogy from the financial markets.

*A conventional OTC swap is a **bilateral contract** that calls for the exchange of periodic flows on a two-way basis. A CDS is not a swap in the conventional sense: it is a **unilateral contract** that involves only the contingent payment of a single flow if default occurs. The CDS is much closer in structure and function to a default option, which is a unilateral, single payment contract.*

Q.4 Name three factors that drive the price of a CDS and describe how each one influences prices levels.

The price of the CDS is influenced by the probability that the reference credit will default (the greater the probability, the higher the CDS price), the expected recovery rate (the higher the recovery rate, the lower the CDS price), and the correlation between the creditworthiness of the CDS counterparty and the reference credit (the higher the correlation, the lower the CDS price). More factors presented during the lecture.

Q.5 Explain why an unfunded TRS is similar to a synthetic financing

The total return receiver in an unfunded TRS uses no cash either to collateralize the transaction or purchase a securities portfolio (for the LIBOR stream), yet it obtains the economics of the reference security as if it had borrowed to purchase it; the LIBOR stream payable to the total return is akin to the financing cost on the transaction.

Q.6 If an investor buys a 12-month credit spread **call option** on Company ABC's bond with a strike spread of 100bps for a premium of 35 bps, what is the appropriate course of

action if ABC's spread tightens to 50bps? Widens to 150bps? What is the breakeven level of the trade?

*If the spread tightens to 50 bps, the investor should exercise the option for a net gain of 15bps (eg 100 bps strike – 50 bps market – 35 bps premium) and a dollar equivalent gain of 15bps *notional*duration. If it widens, the investor must allow it to expire unexercised, as the option is out-of-the-money. The breakeven level on the trade occurs at a spread level of 65 bps (eg 100 bps strike – 35 bps premium); each 1 bp tightening after 65 bps generates profit.*

Q.10 Assume the following reference credit portfolio:

Credit 1: \$10 million notional, post-default price \$40

Credit 2: \$10 million notional, post-default price \$30

Credit 3: \$10 million notional, post-default price \$50

Given a \$30 million structure, how much will an investor receive?

(a) If credit 2 defaults in a standard default?

*The investor will receive \$7 million, which is simply \$10mn *(1-0.30).*

(The par value of bonds is \$100)

(b) If credit 2 defaults in a first-to-default basket?

The investor will still receive \$7 million, as only one credit has defaulted

(c) If credit 1 and 2 default in a first-to-default basket (in that order)?

*The investor will receive \$6 mn, which is \$10mn *(1-0.40) for the first credit to default; the transaction then terminates, meaning no payment is due the investor on the second credit default.*

(d) If credit 3 defaults in a senior basket with a \$5 mn first-loss limit?

The investor will receive no payout; the payout on a standard basket would be \$5mn (\$10mn(1-0.50)), but the loss limit on the senior basket is set at \$5mn.*

(e) If credit 1 defaults in a senior basket with a \$5 mn first-loss limit?

The investor will receive a \$1mn payout; the payout on a standard basket for credit 1 is \$6mn ($\$10mn \cdot (1-0.40)$) and the loss limit is \$5mn, indicating a net payment of \$1mn.