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# Understanding Asset Swaps

Learning Curve
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Asset swaps

Asset swaps combine an interest-rate swap with a bond and are seen as both cash market instruments and also as credit derivatives. They are used to alter the cash flow profile of a bond. The asset swap market is an important segment of the credit derivatives market since it explicitly sets out the price of credit as a spread over Libor. Pricing a bond by reference to Libor is commonly used and the spread over Libor is a measure of credit risk in the cash flow of the underlying bond. Asset swaps can be used to transform the cash flow characteristics of reference assets, so that investors can hedge the currency, credit and interest rate risks to create synthetic investments with more suitable cash flow characteristics. An asset swap package involves transactions in which the investor acquires a bond position and then enters into an interest rate swap with the bank that sold him the bond. The investor pays fixed and receives floating. This transforms the fixed coupon of the bond into a Libor based floating coupon.

As an example, consider an entity that wishes to insure against loss to due to credit events such as default or bankruptcy of the issuer of a bond it is holding. As a protection buyer holding this risky bond, it wishes to hedge the credit risk of this position. By means of an asset swap the protection seller will agree to pay the protection buyer Libor +/- a spread in return for the cash flows of the risky bond (there is no exchange of notional at any point). In the event of default the protection buyer will continue to receive the Libor +/- a spread from the protection seller. In this way the protection buyer has transformed its original risk profile by changing both its interest rate and credit risk exposure.

The generic structure of an asset swap is shown at Figure 1.
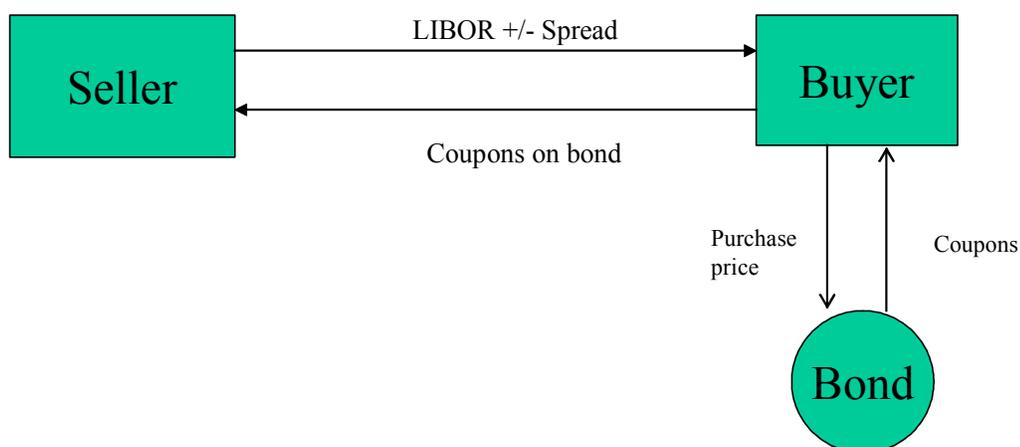
Figure 1 Asset swap

Asset swaps example

Assume that an investor holds a bond and enters into an asset swap with a bank.   Then the value of an asset swap is the spread the bank pays over or under Libor. This is based on the following components:

(i)   value of the coupons of the underlying asset compared to the market swap rate;
(ii)   the accrued interest and the clean price premium or discount compared to par value. Thus when pricing the asset swap it is necessary to compare the par value and to the underlying bond price;

The spread above or below Libor reflects the credit spread difference between the bond and the swap rate.

The Bloomberg asset swap calculator pricing screen ASW shown at figure 2 shows these components in the analysis of the swapped spread details.

Figure 2 Example of Bloomberg asset swap calculator screen
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Illustration of asset swap terms

Let us assume that we have a credit risky bond with the following details:

Currency:	EUR
Issue date:	31 March 2000
Maturity:	31 March 2007
Coupon:	5.5 % per annum
Price (Dirty):	105.3%
Price (Clean):	101.2%
Yield:	5%
Accrued interest:	4.1%
Credit Rating:	A1

To buy this bond the investor would pay 105.3% of par value. The investor would receive the fixed coupons of 5.5% of par value. Let us assume that the swap rate is 5%. If the investor in this bond enters into an asset swap with a bank in which the investor pays the fixed coupon and receives LIBOR +/- spread.

The asset swap price (that is, the spread) on this bond has the following components:

(i)   the value of the excess value of the fixed coupons over the market swap rate is paid to the investor. Let us assume that in this case that this is approximately 0.5% when spread into payments over the life of the asset swap;

(ii)   the difference between the bond price and par value is another factor in the pricing of an asset swap . In this case the price premium which is expressed in present value terms should be spread over the term of the swap and treated as a payment by the investor to the bank (if a dirty price is at a discount to the par value then the payment is made from the bank to the investor). For example in this case let us assume that this results in a payment from the investor to the bank of approximately 0.23% when spread over the term of the swap.

These two elements result in a net spread of 0.5% - 0.23% = 0.27%. Therefore the asset swap would be quoted as Libor + 0.27% (or Libor plus 27 bps).