YOUR FLEXIBLE FRIEND?

ASSET SWAPS ARE A VALUABLE TOOL IN BRINGING BOND ISSUERS AND INVESTORS TOGETHER. **JOHN WRAITH** OF THE ROYAL BANK OF SCOTLAND LOOKS AT SOME OF THE VARIED APPLICATIONS FOR ASSET SWAPS.

The *raison d'etre* of the capital markets is to bring lender and borrower together in the most efficient way possible. Inevitably, the profile of borrowing required by a bond issuer may not always exactly match the investment needs of the lender. One of the financial instruments which is used to bridge this gap is the interest rate swap. When combined with a cash asset (liability) such as a bond in a structure which matches one leg of the swap exactly with the cashflows on the asset (liability), a synthetic instrument with a different profile from the original bond is created. This synthetic combination is called an 'asset swap'.

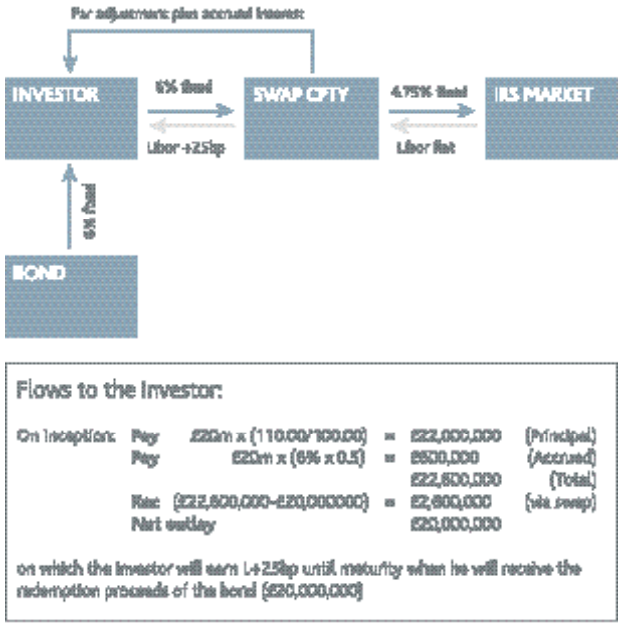
The asset swap has the effect of separating the 'credit risk' decision from the 'market risk' decision. An issuer can select the capital market where his credit name will command the best pricing regardless of whether he requires funding with the interest rate profile or in the currency of the actual issuance. The investor likewise can select a credit which he believes to be competitively priced and then construct the asset profile to suit his portfolio. Thus an understanding of the mechanics of the asset swap is essential for the treasurer involved either in considering the options for bond issuance or in managing investment portfolios within a bank treasury department or as trustee of a company pension scheme.

The two following examples look at how an asset swap can be constructed to change the interest rate profile of an asset either in one currency or across currencies.

CONSTRUCTING THE SINGLE CURRENCY ASSET SWAP. In an asset swap, cashflows accruing on the corporate bond are exactly netted out in the swap, while the upfront investment is exactly the same as the return of principal at maturity. This is achieved through the par par flat of accrued methodology, and provides a highly transparent and efficient trade for the investor. By swapping out all the fixed rate elements of the bond, the investor is left with a clean spread over swaps (Libor), which can be used to evaluate the bond in question relative to both the interbank market and other bonds of similar quality and maturity. Such swaps are constructed as follows:

- assume a bond with 10 years to maturity.
- assume annual coupon = 6%.
- assume price = 110/yield = 5%.
- assume swap rate to maturity date = 4.75% (annual).
- assume we are half-way through an interest accrual period.
- to keep the example simple, we will not take different day counts/payment periods into account. Clearly, these will affect the calculations in reality, but the principle is the same, as demonstrated here.

FIGURE 1
CASHFLOWS UNDER PAR PAR FLAT OF ACCRUED SINGLE CURRENCY ASSET SWAP.



The flows relating to this deal under the structure of a par par flat of accrued asset swap can be seen in *Figure 1*. This example

illustrates how an asset swap can be used to generate a structure that allows the investor to assemble a very clean trade. The net result of the above mechanism is that the investor will spend exactly £20m today on which he will receive a return of Libor+25bp until maturity, when his initial outlay will be returned to him. Assuming he is funding the bond position at Libor flat, this leaves an overall net return of 25bp a year. Assuming the spread does not move and/or the bonds are held until maturity, this return will be constant (assuming no default on the bonds) and can be used to easily compare and contrast varying types and maturities of corporate debt.

The risk to the investor (other than default risk) arises in the situation where the swap spread at which the bond can be asset-swapped moves against him. Should this spread (25bp) widen, the investor will realise a mark-to-market loss which would be crystallised were the position to be closed out before maturity.

USING THE CROSS-CURRENCY SWAP TO EXPAND THE ASSET BASE AVAILABLE TO INVESTORS. For bond investors, cross-currency swaps are another way of expanding the available asset base and enhancing the efficiency of the underlying portfolio. Where interest rate swaps, as explained, are used for switching one type of interest flow for another, cross-currency swaps are used to switch interest flows in one currency (which can be either fixed or floating) for interest flows in another currency. For example, a fixed rate US dollar corporate bond can be swapped to create a sterling floating rate note (FRN) and so on.

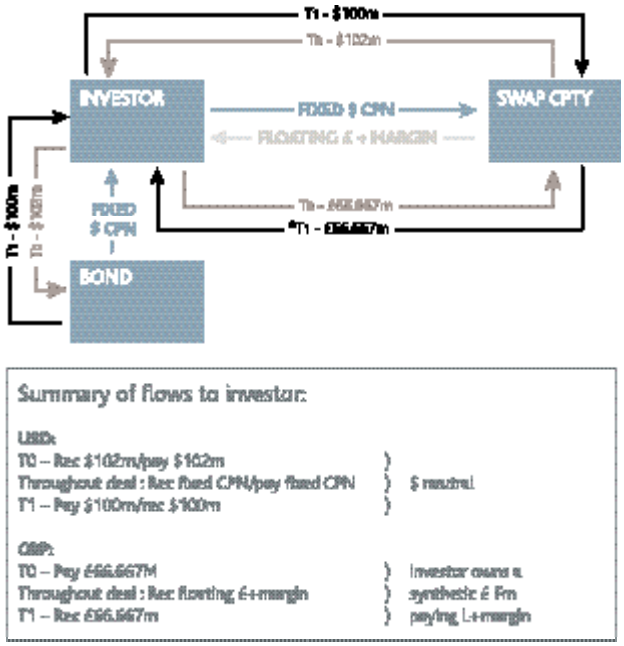
One of the key advantages of this is to open up whole new classes of issuer and bond type to an investor who may have no scope or desire to hold the bonds in question in their currency of issue. Unlike interest rate swaps, there is usually a physical exchange of notional amounts at the start and end of the deal, which on the one hand does imply considerably greater utilisation of credit lines with the swap counterparty, but on the other ensures that there is absolutely no currency risk incurred by the investor. The basic structure of such a deal is as set out in *Figure 2*.

PORTFOLIO APPLICATIONS OF ASSET SWAPS. In addition to their applications in increasing the flexibility of investment and issuance profiles on a standalone bond, asset swaps are increasingly being used to alter the profiles of whole investment portfolios through their use in managing interest rate exposure either as part of a consistent hedging strategy or in instances where the cash market in an asset is illiquid.

USING ASSET SWAPS TO PROTECT AGAINST ADVERSE MOVES IN CREDIT SPREADS. At one time, short gilt positions were often held to manage interest rate risk positions on credit based bond portfolios. This was on the basis that the gilt and corporate bond markets would move in parallel, leaving exposure only to the credit spread of the corporate over government. The asset swap now offers an alternative hedging mechanism which is arguably more robust in an environment where there is increasing volatility in the relationship between spreads in corporate and sovereign debt.

As the interest rate swap market has matured over the past decade, so the relationship swap rates have with corporate debt yields has stabilised, while at the same time various events have contrived to break down the correlation between sovereign and corporate bond yields. In particular, the Russian and Latin American crises of 1998, exacerbated by the collapse of LTCM, led to high volatility in spreads as safe haven flows and credit deterioration led

FIGURE 2
EXAMPLE STRUCTURE OF CROSS-CURRENCY ASSET SWAP.



'THIS DYNAMIC... IS TYPICAL OF PERIODS OF ECONOMIC SLOWDOWN, WHEN HIGHER QUALITY DEBT WILL ALWAYS TEND TO OUTPERFORM'

to significant spread widening. The stipulations of the minimum funding requirement (MFR) effectively caused this spread widening to be maintained and even magnified, as insatiable demand for gilts conflicted with falling supply. Only recently has the relationship begun to head to more normal levels, with the announcement that FRS17 would lead to the replacement of the MFR and a relieving of the pressure on artificially low gilt yields.

The effect of this spread widening on investors who held corporate bonds against gilts was substantial losses, as sovereign debt remorselessly outperformed company debt. Indeed, this dynamic (while it was exaggerated by the events mentioned above) is typical of periods of economic slowdown, when higher quality debt will always tend to outperform. In suggesting swaps as an alternative hedge, it is important to investigate the performance of asset swaps at such times. If the relationship is more stable (that is, spread widening either does not occur or is more limited), then it follows that swaps are a better hedge for corporate bonds than are Government bonds in a time of economic hardship. *Figure 3* plots the yield spread for generic 10-year AAA corporate debt against the relevant hedge instruments in the turbulent period from the beginning of 1998 until the present. We can draw the conclusion from this chart that gilts are not a well correlated hedge for

corporate bonds at times when investors fear a rise in yields is imminent. The lack of stability in the yield spread between Government and corporate debt means there is no certainty that an opposite position in gilts will offset an adverse move in corporate debt. Indeed, it is possible that any loss could even be increased, as it is conceivable that gilts may even move in the opposite direction (negative correlation).

USING ASSET SWAPS TO PROTECT AGAINST ADVERSE MOVEMENT IN OUTRIGHT YIELD. As an alternative, investors can use asset swaps to cushion their portfolios from the adverse impact of rising yields on outright holdings of bonds. By paying away the coupons in the method described above (the par par flat of accrued swap), the owner of the bonds is protected against a rise in yields as long as the Libor spread at which the bonds are swapped does not widen. *Figure 4* demonstrates clearly that in recent periods of rising yields, asset swaps have provided this protection efficiently. The conclusion can therefore be drawn that asset swapping fixed interest corporate bonds and holding them in synthetic floating form through a period of rising outright yields protects the investor from losing money on his portfolio.

In *Figure 4* for the period from 1 January 1999 to 31 December 1999, the generic AA-rated 10-year bond yield rose from 5.39% to 6.55% (116bp), while asset swap spreads on generic AA-rated 10-year debt moved from Libor+7bp to Libor+6bp. This shows how efficient such a hedge can be – asset-swapping bonds for the whole of 1999 would have insulated investors completely from a major adverse move in yields. *Figure 4* illustrates the usefulness of the interest rate swaps market in protecting bond portfolios against adverse moves in bond yields. It can also be shown that the correlation between corporate bonds and swaps is better than that between corporate bonds and Gilts. In the eight years since the beginning of 1993, for example, the spread of generic 10-year AAA bond yields over gilts has traded in a range from 9bp to 121bp (a total of 112bp), while the asset swap spread range has been -33bp to 41bp (a total of 74bp). This evidence that swaps represent a more stable hedge than gilts for corporate debt increases the attractiveness of interest rate swaps as a stable hedge for bonds in periods of rising yields.

DURATION MANAGEMENT USING INTEREST RATE SWAPS. Interest rate swaps can also be used effectively to alter the duration of a bond portfolio without physical reallocation of assets. At times of increased volatility or other market uncertainty, it is appropriate to shorten the overall duration of portfolios, as this will limit the scale of losses should they arise. The shorter the duration of a bond (or portfolio of bonds), the less the net present value of that bond (or portfolio) will change per basis point change in yield. Therefore, at the times of greatest uncertainty in financial markets, assets are generally reallocated to shorter maturities to protect the investor against more significant losses.

Unfortunately, high volatility and rising yields also tend to mean reduced liquidity, making asset reallocation a potentially expensive business, as the investor is forced to cross wide bid-offer spreads to switch holdings. A solution to this is presented by interest rate swaps, where positions can be established quickly and simply in instruments where the bid-offer spread stays relatively tight, even in volatile markets. By entering into an interest rate swap to pay fixed for, say, 10 years against receiving six month Libor, an investor can immediately shorten the duration of his bond portfolio. From a risk perspective, the effect of entering into such a deal is the same as would be achieved by selling 10-year bonds (paying fixed for 10 years) and buying six-month paper with the proceeds (receiving fixed for six months).

FIGURE 3
10Y AAA CREDIT SPREAD V GILTS/SWAPS 1998-2001.

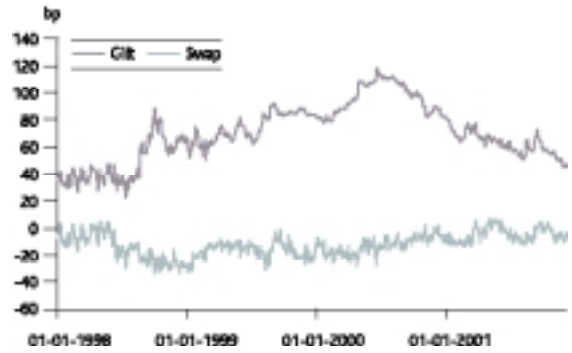
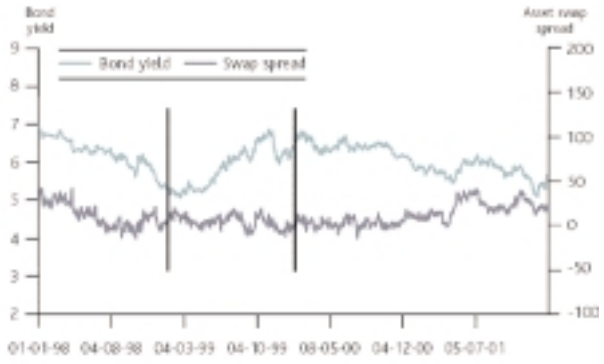


FIGURE 4
10Y £ AA BONDS – YIELD AND SWAP SPREAD 1998-2002.



EFFICIENCY AND FLEXIBILITY. The utilisation of asset swaps can facilitate the efficiency and flexibility of the fixed income capital markets by:

- allowing treasurers to issue securities based on credit pricing, irrespective of the interest rate risk profile or currency of the funds required;
- allowing investors to purchase bonds based on a credit decision, regardless of the interest rate risk profile or currency which they require;
- allowing investors to separate credit risk exposure from interest rate exposure on an investment or portfolio by locking into a 'credit spread' more effectively than is possible using gilt hedging techniques; and
- allowing investors to change the interest rate profile of their portfolio without disposing of assets in an possibly illiquid market.

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