ANZ Investment Bank

Bermudan Swaption

Overview

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1.0 Scenario

You have floating rate debt that is currently unhedged. Floating rates are lower than fixed and you would prefer to pay the floating for as long as possible.

You recognise the risks inherent in this strategy, as any sign of a general rise in interest rates will probably be manifested first in a rise in longer term rates. You would like to have some fixed rate cover in place, but are loath to fix immediately as you do not feel a rise in rates is imminent. When you do make a decision to hedge you will wish to enter into a swap, rather than a cap, and the end date of the swap will be the repayment date of your floating rate loan. This date is fixed and does not change with time.

You would like the right, but not the obligation, on any loan roll date, to pay fixed on a swap. The swap into which you would enter will have a set maturity date. This means the tenor of the swap decreases with time.

2.0 What is a Bermudan Swaption ?

A vanilla swaption is an option where the purchaser has the right but not the obligation to enter into a swap (with swap details agreed at the outset) on the option maturity date. A Bermudan swaption, by comparison, is a swaption that can be exercised on a defined number of pre-specified dates, making it more flexible than the vanilla swaption. Regardless of when (or if) the Bermudan swaption is exercised, the underlying swap will have the same maturity date.

3.0 Examples

Two examples will be given to demonstrate the use of a Bermudan swaption.

3.1 Example 1

The pricing below shows the comparison between a vanilla swaption and Bermudan hedge strategy for a floating rate borrower.

Vanilla Payer Swaption		**Bermudan Payer Swaption**	
Strike Rate =	6.75%	Strike Rate =	6.75%
5 year Swap Rate =	6.25%	5 year Swap Rate =	6.25%
Exercisable in 1 year into a 4 year swap		Exercisable on any one of first 4 quarterly dates into a swap with an initial maturity of 5 years	
Cost per million =	$15,000	Cost per million =	$16,500

Suppose you enter into a vanilla swaption today with expiry in one year that gives the right to pay fixed for the subsequent 4 years with quarterly rolls at 6.75%. Regardless of the track of interest rates between now and one year's time, you must wait until then to enter into the underlying swap agreement. If rates start rising before the exercise date on the swaption, you would like to have the opportunity to lock in early.

If however, you had purchased a Bermudan swaption, exercisable say at the end of each quarter, you would have the right to exercise the swaption on the pre-specified dates and pay fixed at 6.75% until the same expiry date.

3.2 Example 2

This example shows how a fixed rate payer may unwind a hedge position without incurring a break cost.

Bermudan Receiver Swaption

Strike Rate =	5.65%
5 year Swap Rate =	5.65%
Exercisable on any of 10 semi-annual rolls into a swap with an initial maturity of 5 years	
Cost per million =	$16,583

Suppose you have floating rate borrowings, which are currently hedged, via an interest rate swap. You have put this hedge in place to protect against rate rises, but you believe you may be in a position to pay down the debt early due to the potential sale of a business asset. If this occurs you will wish to unwind your interest rate cover and repay the floating rate loan. You do not want to be exposed to the possibility of incurring a break cost on the swap in this event.

The solution is to purchase a Bermudan receiver swaption. This gives you the right but not the obligation to receive fixed on any rollover date, into a swap which has the same parameters as your swap hedge. In the event that you exercise this option, you will effectively cancel the hedge at the original rate without incurring a break cost.

4.0 Features & Benefits

- Bermudan swaptions give the purchaser the right to exercise the underlying swap on any pre-specified dates to provide cover over an extended period. This is beneficial in a rising interest rate environment where the purchaser can enter into the underlying swap early if required.
- They can also be used in conjunction with an existing swap to enable cover to be terminated with no break cost.

5.0 Constraints & Risks

- Bermudan swaptions are more expensive than vanilla swaptions with the same parameters, as there are more opportunities to exercise, thus providing more opportunities to put cover in place.

6.0 Conclusion

Bermudan swaptions can be used to hedge interest rate exposure effectively especially during uncertain times. It gives the purchaser the flexibility to exercise on pre-specified dates before the maturity date of the swaption for extended cover. They also enable existing swaps to be cancelled for no break cost.