

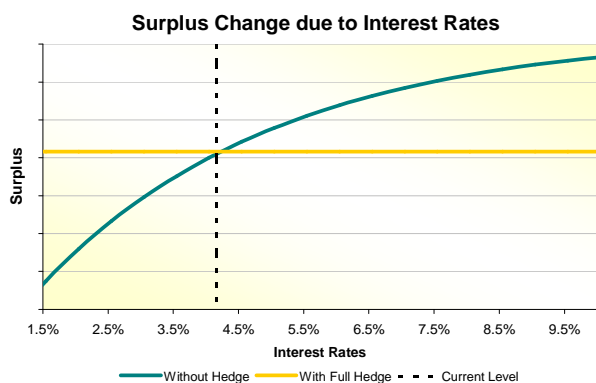
Swaptions - Money for Old Rope?

Getting paid for decisions you've already taken in liability hedging

A useful new addition to your liability hedging tool box, a swaption is an option to enter into a swap on a specified future date. Swaptions can be used to enter into a liability hedging strategy gradually, as interest rates rise and, structured correctly; the scheme gets paid for taking the decision to hedge. Read on for our introduction to swaptions, and how they can be used in a tactical liability hedge.

Hedging Interest Rate risk

As the concept of liability hedging becomes an embedded part of pension scheme investment strategies, it is important to make the best use of the tools available. Interest rate risk is generally considered to be an unrewarded risk and if a scheme has minimal risk appetite the neutral position should be to hedge. This gives the payoff below:



However, while long term interest rates are low relative to recent historical levels, this risk could be considered an asymmetric risk i.e. rates may be more likely to rise from here than fall. A scheme with a higher risk appetite may wish to wait to implement the whole of its liability hedging strategy until rates are at a more "normal" level – i.e. lock in to a higher interest rate and a lower liability value.

Trigger Points

This decision is often implemented using trigger points – for example if interest rates are currently 4% then half of the hedge will be implemented when rates reach 4.5% and the final half when they reach 5%. This way if interest rates rise then the scheme will implement its hedge at more favourable levels (and after the funding position had improved through a fall in the liabilities). Until the trigger is reached, the scheme retains the downside risk, in the belief that a fall in interest rates is unlikely.

There are no hard and fast rules as to where to set the trigger

In brief:

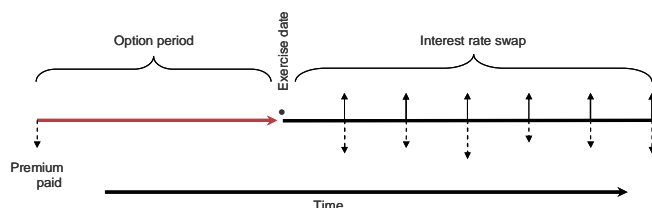
- A swaption is an option to enter into a swap
- Can be used to implement a liability hedge gradually
- The scheme can receive the premium

points and generally this would initially involve a discussion with your investment advisors. They will advise on some appropriate trigger points depending on the risk appetite of the scheme and the current level of hedging. In addition, considering the duration and shape of the liabilities, the funding basis and the strength of the sponsor covenant is also important when deciding trigger levels.

For a scheme that has decided to implement an interest rate hedge using trigger points, swaptions allow the scheme to achieve a similar result and to potentially enhance its returns.

Swaptions

A swaption is simply the option to enter into a swap – i.e. the option to enter into a liability hedge. The diagram below shows how the payments are structured. At the exercise date the buyer of the option chooses whether they want to enter into a swap at the pre-agreed rate e.g. 5% or not



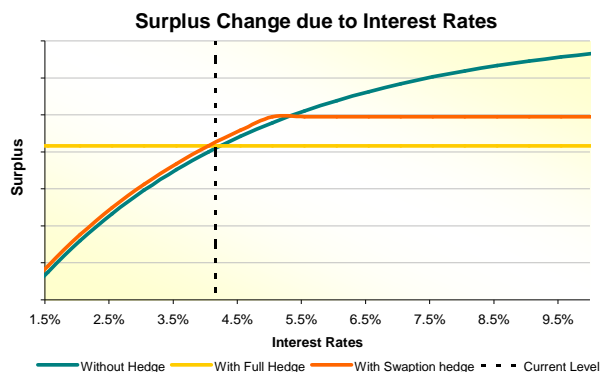
A swaption has the following defining properties:

- **The Exercise Date** - the date the option expires e.g. 2 years from today
- **The Term of the Swap** e.g. 20 years so that in 2 years time there is the option to enter into a 20 year swap
- **The Strike Rate** - the pre-agreed fixed rate of the swap equivalent to the trigger level e.g. 5%
- **Pay or Receive?** This determines whether the holder of the option will enter into the swap to pay or receive the fixed rates. Pension schemes want to receive a fixed rate to ensure they can meet their liabilities.
- **Premium** - this is the cost of the swaption. If a scheme buys a swaption it will pay the premium, if it sells a swaption it will receive the premium

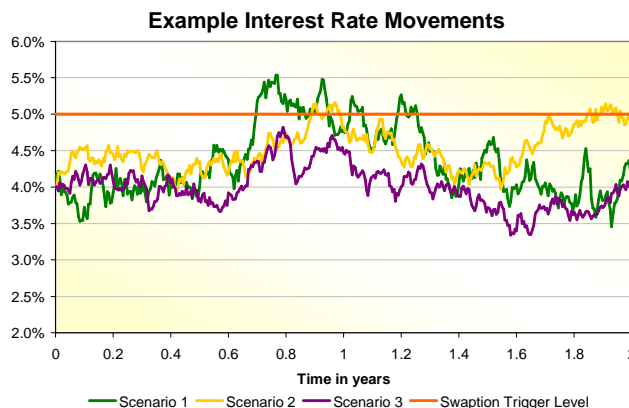
A pension scheme could buy or sell swaptions as part of their liability hedge. A scheme that is under-hedged and has decided to implement trigger points, could **sell** swaptions to

another party giving them the right to enter into a swap to pay the pre-agreed fixed rate. This way, if the purchaser chooses to exercise the option, the scheme enters into a hedge at the agreed level. And, the best bit? The scheme gets paid to enter into this strategy – for the example shown above, the scheme could expect to receive more than 3% of the notional in current market conditions (e.g. £3m on a £100m liability hedge notional).

The payoff diagram below shows how selling a swaption differs from using a full hedging position. As the scheme receives a premium, if interest rates fall the scheme is better off than with no hedge at all, but still retains the majority of the downside risk. However, if rates rise above the strike rate at the exercise date of the option, the scheme automatically enters into the hedge at a more favourable level.



- **Sharp rise in interest rates** – say interest rates rise high above the specified level six months after implementing the swaption, the scheme still has to wait another 18 months before entering into the hedge. The worst case scenario here is that over this time, rates fall significantly and the scheme is unprotected (scenario 1 in the graph below), whereas under a trigger point approach, the hedge would be implemented the first time the rate hits the trigger.



This risk can be mitigated in two ways; by only using swaptions for a proportion of your outstanding liability risk; and also by implementing a range of swaptions at different expiries and strike rates so the risk is diversified.

- **Counterparty risk** – this can be managed with collateralisation under the same legal documentation as normal swap contracts.

What's the risk?

The most obvious risk is that interest rates fall from this point and the scheme is un-hedged. This will have a negative impact on the scheme's funding position. But if the decision has already been taken to under-hedge, or not hedge at all at these low levels of interest rates then we can compare the risks of the swaption strategy against the implementation of trigger points.

- **Regret risk** – once the swaption is entered, the trigger points are part of the contract. With a normal trigger point strategy the trustees of the scheme have the ability to change their mind, if for example rates began to look like they were going to rise much higher than the trigger point. With swaptions, this choice is no longer readily available (the swaptions could be unwound at a cost).

Summary

Swaptions can be a very useful tool in liability hedging strategies particularly if the scheme has some risk appetite at these low levels of long term interest rates. They can be used to enter the strategy gradually as interest rates rise and the scheme can receive a premium for implementing the strategy at more favourable levels. There are risks, but provided they are properly understood and well managed we believe this strategy can add much value to the scheme's liability hedging position.

To implement a swaption strategy, talk to your investment advisor or one of our risk management specialists who can design a portfolio of swaptions and trigger points to best meet the scheme needs.

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