

RBS shifts the inflation derivatives market up a gear

Institutional hedging requirements have provided the impetus for development of the UK inflation options market. RBS Global Banking & Markets (GBM) has responded by refining the design of the instruments and publishing price screens to ensure transparency and promote liquidity. Mark Greenwood of inflation options trading at RBS GBM, surveys the scene

A promising start

The UK inflation derivatives market will shortly enter its teens and it is showing much potential. Its younger siblings, the European and US inflation markets, have drawn much of the attention in recent years with their vibrant market for structured inflation notes. While these structured notes have become evermore exotic, the UK inflation options market has raced ahead in options volume growth. This evolution has been driven by the needs of investors and borrowers, creating natural two-way option flows. In turn, end-user UK investors and borrowers have become more experienced and more comfortable transacting inflation options.

Limited Price Indexation

Encouragingly, the market for Limited Price Indexation (LPI) swaps is becoming more liquid, with a greater combination of strikes. LPI swaps have a compound Retail Price Index (RPI) leg, where the annual rate of increase is subject to a collar. LPI collared between 0% and 5% corresponds to typical UK pensions in payment increases. This level of LPI collar is also attractive to borrowers seeking to collar inflation-linked funding. The 0% deflation floor implicit in revenue streams such as property rentals is monetised, while the collar affords cheap protection against high inflation. An active two-way market in LPI [0,5] has developed out to 50 years, but institutions now frequently transact collars with strikes that precisely match their assets and liabilities.

Inflation caps and floors

Meanwhile, volatile and extreme RPI prints, such as the 4.8% annual increase in March of this year, have helped the development of a market for RPI inflation caps and floors in the UK. This facilitates the accurate pricing and dynamic hedging of LPI collars, especially strikes other than the standard 0% floor and 5% cap. Early this year, RBS signalled its ongoing commitment to

innovation in the space by publishing the first screens for Euro HICPx and RPI caps and floors. The Bloomberg RILO screens give two-way prices for a wide range of strikes and maturities. The smart money behind leveraged funds has been quick to exploit the cheap leverage available through the inflation caps and floors market to express inflation, real rate, macro and relative value views. The imbalance between supply and demand for certain RPI strikes produces a marked skew and smile in the RPI cap floor volatility surface, and creates trading opportunities. The

“BGI has traded significant volumes of LPI swaps over the last three years. We have seen increased transparency, liquidity and responsiveness in LPI prices across the spectrum of swap strikes and maturities from major inflation market participants such as RBS”

**Kate Jones, Principal, Head of Portfolio Management,
Strategic Solutions Group, BGI**

appearance of leveraged fund investors marks another milestone in the development of liquidity and price transparency in the UK inflation options market. Inflation caps and floors prices also promote liquidity in year-on-year inflation swaps (with unaccreted notional) favoured by some market participants, since the convexity adjustment versus zero coupon swaps can be hedged using these options.



Mark Greenwood

Inflation swaptions and real rate swaptions

Additionally, it is important to note how borrowers arranging financing for an inflation-linked deal are vulnerable to movements in the inflation swap market in the period before the transaction is finalised. An inflation swaption can be used to preserve the project's viability. RBS has traded a number of RPI and LPI swaptions and cancellable swaps in this context. A combination of

an inflation swaption and nominal rate swaption can be used to hedge against movements in the real rate. This taps the liquidity of the nominal swaption market, but the hedge may be costly since real rate protection is only required to the extent nominal and inflation rate movements do not offset. Real rate swaptions provide a more precise hedge. The hedging interests of borrowers and LDI pension investors naturally offset to the extent that borrowers may sell receivers at low strikes to buy payers at high strikes. Investors, meanwhile, use the opposite position to collar their real rate exposure. The collar and payout can, of course, be customised to the client's circumstances, as illustrated in the British Nuclear Fuels case study (see box).

“LGIM has made increasing use of instruments such as floored RPI inflation swaps and real rate swaptions to hedge liabilities. RBS is a leading provider of those instruments”

**Kerrigan Procter, Head of Derivative Structuring,
Legal & General Investment Management**

A future full of potential

Taking these developments into account, in the future we can see a number of scenarios where real rate swaptions provide a cost-effective and precise hedge for institutions with assets or liabilities linked to inflation. Real rate swaptions may be used to lock in the terms of a pension buyout, a leveraged finance bid or project finance, for example. RBS has identified circumstances where real rate financing on an event contingent basis may offer compelling advantages.

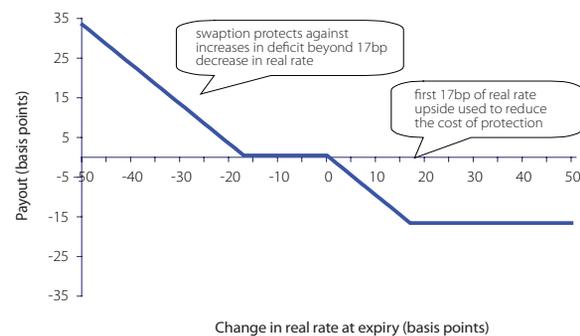
Case Study: Pension fund real rate swaption hedge

British Nuclear Fuels plc (BNFL) was due to transfer sponsorship of its pension fund at a future date. BNFL was responsible for any FRS17 deficit then, but would only partially benefit from any improvement in funding level.

The RBS GBM Pension Solutions Team undertook an analysis of the risk sensitivity of the funding position to changes in market levels. The team mapped the change in solvency due to mismatch between the assets and liabilities related to changes in an appropriate long-term real rate.

A range of collars was considered in order to optimise the trade-off between risk and reward. BNFL decided to bear the loss from the first 17 basis point (bp) drop in the real rate and use the limited upside benefit available of a 17bp increase in real rates to offset much of the premium. The real rate swaption payout is illustrated in figure 1.

1. The real rate swaption collar payout



The payout was linked to the real swap rate rather than a real gilt yield. This is expected to produce a better match to the AA discount rate used to value the pension liability under FRS17. A similar payout structure could, however, have been constructed using UK linker real yields. A number of alternatives exist for the design of the swaption, with implications for the efficiency and cost of the hedge. It was determined that the real rate exposure was to inflation and nominal rates at the expiry date of the swaption, so the payout was based on the forward real rate. The swaption needs to be cash settled to compensate the sponsor for a loss on making good the deficit, although the underlying swap could be passed to the pension fund should the trustees deem this desirable for risk management purposes.

“RBS worked with us to structure an innovative hedging solution for our real rate risk exposure. The trade was efficiently structured and executed within a tight deadline and volatile market conditions”

Michael Davies, British Nuclear Fuels plc



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