Financial Mathematics

On IRR-swaptions and Markov Functional Modeling

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In this talk we study the European swaption market and what is known as cash settled IRR-swaptions. There are several results worth highlighting. First, if we know at what fixed coupon an IRR-swap values to par, we can compute the price of any IRR-swaption in a way consistent with absence of arbitrage. We show that this fixed coupon denoted the IRR-forward, car-ries an additional convexity adjustment. The size of the adjustment depends mainly on the shape of the volatility surface but also on the skew of the forward. The largest convexity adjustments are seen for IRR-forwards referencing long tenors and long expiries. Second, we investigate the Markov functional technique, relating an arbitrary model to the market observed IRR-swaptions, and provide details on how this approach can be applied.