

Cap Volatility Surface

An implied volatility is the volatility implied by the market price of an option based on the Black-Scholes option pricing model. In cap market, a cap/floor is quoted by implied volatilities but not prices. An interest rate cap volatility surface is a three-dimensional plot of the implied volatility of a cap as a function of strike and maturity.

The term structures of implied volatilities which provide indications of the market's near- and long-term uncertainty about future short- and long-term forward interest rates. A crucial property of the implied volatility surface is the absence of arbitrage.

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Vol skew or smile pattern is directly related to the conditional non-normality of the underlying returns. In particular, a smile reflects fat tails in the return distribution whereas a skew indicates asymmetry. A crucial property of the implied volatility surface is the absence of arbitrage.

Reference:

<https://finpricing.com/lib/EqRangeAccrual.html>