

Title: Implied Volatility Smirk in Levy Markets

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ABSTRACT:

Since the introduction of the Black-Scholes model, many attempts to capture the real behavior of the implied volatility have been realized. The most well known facts are the volatility smile and smirk, that shows that depending on moneyness and maturity we can observe a determined behavior.

On the other hand, it is well established the relationship among the implied volatility symmetry and the market symmetry or put-call symmetry, as Fajardo and Mordecki [2006] and Carr and Lee [2009] have show for Levy process and local and stochastic volatility models, respectively. Also, Fajardo and Mordecki [2014] have shown the relationship among the skewness premium and the market symmetry parameter.

In this poster we are focusing on Levy process, with exponential dampening controlling the skewness, and using duality techniques we obtain a result that allow us to relate the implied volatility skew and a market symmetry parameter in a neighborhood of the Put-Call symmetry. We found a sufficient condition that imply the above behavior and we prove that this condition is verified by the most popular Levy models.