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Student's t-Distribution Based Option Sensitivities: Greeks for the Gosset Formulae

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(Submitted on 6 Mar 2010)

European options can be priced when returns follow a Student's t-distribution, provided that the asset is capped in value or the distribution is truncated. We call pricing of options using a log Student's t-distribution a Gosset approach, in honour of W.S. Gosset. In this paper, we compare the greeks for Gosset and Black-Scholes formulae and we discuss implementation. The t-distribution requires a shape parameter \nu to match the "fat tails" of the observed returns. For large \nu, the Gosset and Black-Scholes formulae are equivalent. The Gosset formulae removes the requirement that the volatility be known, and in this sense can be viewed as an extension of the Black-Scholes formula.

Comments:	27 pages, 13 figures and 6 tables. Submitted to the International Journal of Theoretical and Applied Finance. Follow-up on the arXiv:0906.4092 work/paper.
Subjects:	**Pricing of Securities (q-fin.PR)**
Cite as:	**arXiv:1003.1344v1 [q-fin.PR]**

Submission history

From: Rachid Ouyed [view email]

[v1] Sat, 6 Mar 2010 01:12:26 GMT (380kb)