

Lo, C. F.; Yuen, P. H.; Hui, C. H.

Constant elasticity of variance option pricing model with time-dependent parameters. (English) [Zbl 1006.91050](#)

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The authors start with the observation that both theoretical arguments and empirical data imply a strong negative correlation between a stock price and the volatility of its percentage change. This leads them to the study of various constant elasticity of variance (CEV) models with time-dependent parameters. Explicit pricing formulas for various CEV processes with different elasticity factors are provided. The numerical results indicate that option values are sensitive to the volatility of the term structure. The proposed Lie-algebraic approach, used for the first time in the literature in this context, appears to be quite simple and easily extendable to other option pricing models with well defined algebraic structures.

Reviewer: Leszek Zaremba (Warszawa)

MSC:

91G20 Derivative securities (option pricing, hedging, etc.)

Cited in **19** Documents

Keywords:

option pricing model; constant elasticity of variance

Full Text: [DOI](#)

References:

- [1] DOI: 10.2307/2327490 · [doi:10.2307/2327490](#)
- [2] DOI: 10.1086/260062 · [Zbl 1092.91524](#) · [doi:10.1086/260062](#)
- [3] DOI: 10.1016/0304-405X(82)90018-6 · [doi:10.1016/0304-405X\(82\)90018-6](#)
- [4] DOI: 10.1016/0304-405X(76)90023-4 · [doi:10.1016/0304-405X\(76\)90023-4](#)
- [5] DOI: 10.1016/0304-405X(91)90011-8 · [doi:10.1016/0304-405X\(91\)90011-8](#)
- [6] DOI: 10.3905/jod.1996.407970 · [doi:10.3905/jod.1996.407970](#)
- [7] DOI: 10.2307/2328720 · [doi:10.2307/2328720](#)
- [8] Lo C. F., *Physical Review* 47 pp 115–
- [9] DOI: 10.1209/0295-5075/24/5/001 · [doi:10.1209/0295-5075/24/5/001](#)
- [10] DOI: 10.1209/0295-5075/32/3/001 · [doi:10.1209/0295-5075/32/3/001](#)
- [11] DOI: 10.1209/epl/i1997-00345-2 · [doi:10.1209/epl/i1997-00345-2](#)
- [12] Lo C. F., *Physics Letters* 246 pp 66–
- [13] Lo C. F., *Physica* 262 pp 153–
- [14] DOI: 10.1016/S0375-9601(97)00212-0 · [Zbl 1052.81537](#) · [doi:10.1016/S0375-9601\(97\)00212-0](#)
- [15] DOI: 10.2307/2326355 · [doi:10.2307/2326355](#)
- [16] DOI: 10.2307/2328285 · [doi:10.2307/2328285](#)
- [17] DOI: 10.1063/1.1703993 · [Zbl 0133.34202](#) · [doi:10.1063/1.1703993](#)

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