

Financial Analysts Journal >

Volume 40, 1984 - [Issue 6](#)

51 Views | 5 CrossRef citations to date | 0 Altmetric


Research Articles

# Modifying the Black-Scholes Option Pricing Model for Alternative Underlying Instruments

James F. Meisner & John W. Labuszewski

Pages 23-30 | Published online: 31 Dec 2018

 Cite this article  <https://doi.org/10.2469/faj.v40.n6.23>

 CFA Institute members: [sign in to access the Financial Analysts Journal](#).

Sample our  
Tourism, Hospitality and  
Events Journals  
>> [Sign in here](#) to start your access  
to the latest two volumes for 14 days

 Citations

 Metrics

 Reprints & Permissions

[Read this article](#)

 Share

## Modifying the Black-Scholes Option Pricing Model for Alternative Underlying Instruments

The Black-Scholes option pricing model may be used to evaluate options on various types of underlying instruments, but significant modifications are necessary. In addition to financing costs, for example, the formula for commodity options must incorporate storage costs over the option's life, whereas the formula for securities must consider expected dividends or interest income. Conventional options on futures contracts, on the other hand, entail no holding costs. And the formula for "futures-style" options on futures must recognize that neither holding costs nor short-term rates are a factor in pricing.

These adjustments have implications for the "put-call parity" relationship, which provides information about the relative time values associated with puts and calls. For securities, put time value will exceed call time value if expected dividends or interest income exceed financing costs. In the case of conventional commodity options, call time value always exceeds put time value. The time value of a conventional put (call) on a futures contract will exceed call (put) time value if the call (put) options is in-the-money. Put and call time values are always equal for futures-style options on futures.

The authors provide a computer program, written in BASIC, for calculating "fair market" put and call option premiums for options on securities, commodities and futures.

**M**ODELS FOR THE PRICING of options have proliferated as new types of option contracts have been introduced.<sup>1</sup> The common ancestor of all these models is the Black-Scholes stock option pricing model.<sup>2</sup> The Black-Scholes model, although based on assumptions that may be deemed overly restrictive for practical applications, is nonetheless the most widely known and referenced method for estimating "fair market" option premiums.

1. Footnotes appear at end of article

James Meisner is Option Research Analyst at Prudential Bache Securities, Inc. John Labuszewski is Senior Marketing Manager at the Chicago Board of Trade.

This article demonstrates how the Black-Scholes option pricing formula is adapted for the valuation of four classes of options—(1) conventional (prepaid premium) options on securities (such as stocks and bonds), (2) conventional options on storable commodities (such as metals and grains), (3) conventional options on futures contracts, and (4) "futures-style" (marginated premium) options on futures contracts. The modifications necessary to adapt the classic formula illustrate some of the basic differences between the instruments that may underlie an option contract. Put-call parity and option price sensitivity to changes in underlying parameters are considered within the framework of this

Log in via your institution

➤ Access through your institution

Log in to Taylor & Francis Online

➤ Log in


Restore content access

➤ Restore content access for purchases made as guest

## PDF download + Online access

- 48 hours access to article PDF & online version
- Article PDF can be downloaded
- Article PDF can be printed


EUR 48.00

 Add to  
cart

## Issue Purchase

- 30 days online access to complete issue
- Article PDFs can be downloaded
- Article PDFs can be printed

EUR 136.00

 Add to  
cart

\* Local tax will be added as applicable

## Related Research

People also read

Recommended articles

Cited by  
5

[General Black-Scholes models accounting for increased market volatility from hedging strategies](#) >

K. Ronnie Sircar et al.  
Applied Mathematical Finance  
Published online: 14 Oct 2010

## Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

## Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

## Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

## Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

## Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

Registered in England & Wales No. 01072954  
5 Howick Place | London | SW1P 1WG



**Taylor & Francis**  
by informa