

AN EMPIRICAL ANALYSIS OF WARRANT PRICES VERSUS LONG-TERM CALL OPTION PRICES

Chris Veld, Adri Verboven

First published: December 1995

<https://doi.org/10.1111/j.1468-5957.1995.tb00897.x>

Citations: 12

Journal of Business Finance & Accounting, 22(8), December 1995, 0306-686X

AN EMPIRICAL ANALYSIS OF WARRANT PRICES VERSUS LONG-TERM CALL OPTION PRICES

CHRIS VELD AND ADRI VERBOVEN*

INTRODUCTION

In their well-known warrant pricing paper Galai and Schneller (1978) demonstrated that otherwise identical warrants and call options, should have the same price. No empirical research that confronts this result with actual data appears to be available, which is probably caused by the fact that warrants usually have a much longer time to maturity than call options. However, this is not the case for the Dutch capital market. Since 1986, the European Options Exchange (EOE) in Amsterdam provides for trading in call and put options on individual stocks with maturities up to a maximum of five years. In the last few years, these long term option contracts have become increasingly popular among investors in the Netherlands, resulting in steady growing trading volumes and considerable open interest positions.^{1,2} Moreover, at the Amsterdam Stock Exchange (ASE) warrants and covered warrants are being traded. This Dutch institutional feature enables us to carry out a new test, i.e. a comparison of warrant prices versus long term call option prices. In this paper we will analyze a data-set containing prices of warrants and call options

This website utilizes technologies such as cookies to enable essential site functionality, as well as for analytics, personalization, and targeted advertising purposes. You may change your settings at any time or accept the default settings. [Privacy Policy](#)

[Manage Preferences](#)

[Accept All](#)

be robust to the choice of either the binomial model, the Merton model or the Square Root CEV model to compute the implied standard deviation.

* The authors are both from the Department of Business Administration at Tilburg University, The Netherlands. They are much indebted to Uri Ben-Zion, Sudipto Bhattacharya, Michel Crouhy, Pieter Duffhues, Dan Galai, Angeliem Kemna, Pieter Moerland, Siegfried Trautmann, Ton Vorst and the participants at the AFFI-Conference, 1991, in Louvain-la-Neuve, Belgium; the 'Workshop on Share and Bond Derivative Contracts', 1992, in Tilburg; The European Finance Association, 1992, in Lisbon; and The Northern Finance Association, 1992, in Toronto, for helpful comments and suggestions. Special thanks go to Theo Nijman for his detailed comments. Finally they thank Jos Lemmens, Michel van Bremen and Lysanne van der Made for their computational and research assistance. The authors are solely responsible for any remaining errors. (Paper received March 1993, revised and accepted June 1994)

Address for correspondence: Chris Veld, Department of Business Administration, Faculty of Economics, Tilburg University, PO Box 90153, 5000 LE Tilburg, The Netherlands.

© Blackwell Publishers Ltd. 1995, 108 Cowley Road, Oxford OX4 1JF, UK and
238 Main Street, Cambridge, MA 20142, USA.

1125

REFERENCES

Beckers, S. (1980), 'The Constant Elasticity of Variance Model and its Implications for Option Pricing', *The Journal of Finance*, Vol. 35, pp. 661-673.

Beckers, S. (1981), 'Standard Deviations Implied in Option Prices as Predictors of Future Stock Price Variability', *Journal of Banking and Finance*, Vol. 5, pp. 363-381.

Bensoussan, A., M. Crouhy and D. Galai (1992), *Black-Scholes Approximation of Warrant Prices* (Paper presented at the 19th annual meeting of the European Finance Association, Lisbon, Portugal).

Berkman, H. (1992), *Trading Systems and Liquidity on Securities Markets: A Study of The European Options Exchange* (Erasmus University Rotterdam, The Netherlands).

Black, F. and M. Scholes (1973), 'The Pricing of Options and Corporate Liabilities', *Journal of Political Economy*, Vol. 81, pp. 637-654.

This website utilizes technologies such as cookies to enable essential site functionality, as well as for analytics, personalization, and targeted advertising purposes. You may change your settings at any time or accept the default settings. [Privacy Policy](#).

[Manage Preferences](#)

[Accept All](#)

Cox, J.C. and S.A. Ross and M. Rubinstein (1979), 'Option Pricing: A Simplified Approach', *Journal of Financial Economics*, Vol. 7, pp. 229-263.

Crouhy, M. and D. Galai (1991), 'Warrant Valuation and Equity Volatility', in F. J. Fabozzi (Ed.), *Advances in Futures and Options Research*, Vol. 5 (JAI Press Inc.), pp. 203-215.

Crouhy, M. and D. Galai (1994), 'The Interaction Between the Financial and Investment Decisions of the Firm: The Case of Issuing Warrants in a Levered Firm', *Journal of Banking and Finance*, Vol. 18, pp. 861-880.

Emanuel, D.C. and J.D. MacBeth (1982), 'Further Results on the Constant Elasticity of Variance Call Option Pricing Model', *Journal of Financial and Quantitative Analysis*, Vol. 16, pp. 533-554.

Galai, D. (1983), 'A Survey of Empirical Tests of Option-pricing Models', in M. Brenner (Ed.), *Option Pricing* (D.C. Heath, Lexington, Massachusetts), pp. 45-80.

Galai, D. (1989), 'A Note on "Equilibrium Warrant Pricing Models and Accounting for Executive Stock Options"', *Journal of Accounting Research*, Vol. 27, pp. 313-315.

Galai, D. and M.I. Schneller (1978), 'Pricing of Warrants and the Value of the Firm', *The Journal of Finance*, Vol. 33, pp. 1333-1342.

Hull, J. (1993), *Options, Futures, and Other Derivative Securities* (Prentice Hall, Englewood Cliffs, New Jersey).

Jarrow, R.A. and S. Trautmann (1992), Warrant Valuation in Complete Markets (Paper presented at the 19th annual meeting of the European Finance Association, Lisbon, Portugal).

This website utilizes technologies such as cookies to enable essential site functionality, as well as for analytics, personalization, and targeted advertising purposes. You may change your settings at any time or accept the default settings. [Privacy Policy](#)

Manage Preferences

Accept All

Lauterbach, B. and P. Schultz (1990), 'Pricing Warrants An Empirical Study of the Black-Scholes Model and its Alternatives', *The Journal of Finance*, Vol. 45, pp. 1181–1209.

MacBeth, J.D. and L.J. Merville (1980), 'Tests of the Black-Scholes and Cox Call Option Valuation Models', *The Journal of Finance*, Vol. 35, pp. 285–301.

Merton, R.C. (1993), 'Theory of Rational Option Pricing', *Bell Journal of Economics and Management Science*, Vol. 4, pp. 141–183.

Noreen, E. and M. Wolfson (1981), 'Equilibrium Warrant Pricing Models and Accounting for Executive Stock Options', *Journal of Accounting Research*, Vol. 19, pp. 384–398.

Rubinstein, M. (1985), 'Nonparametric Tests of Alternative Option Pricing Models Using all Reported Trades and Quotes on the 30 Most Active CBOE Option Classes from August 23, 1976 through August 31, 1978', *The Journal of Finance*, Vol. 40, pp. 455–480.

Schulz, G.U. and S. Trautmann (1994), 'Robustness of Option-like Warrant Valuation', *Journal of Banking and Finance*, Vol. 18, pp. 841–859.

Sharpe, W.F. and G.J. Alexander (1990), *Investments* (Prentice Hall, Englewood Cliffs , New Jersey).

Stucki, T. and W. Wasserfallen (1991), *Pricing of Warrants — An Empirical Evaluation* (Discussion Paper, Study Center Gerzensee, Switzerland).

Veld, C. (1992), *Analysis of Equity Warrants as Investment and Finance Instruments* (Tilburg University Press, The Netherlands).

This website utilizes technologies such as cookies to enable essential site functionality, as well as for analytics, personalization, and targeted advertising purposes. You may change your settings at any time or accept the default settings. [Privacy Policy](#).

Manage Preferences

Accept All

White, H. (1980), 'A Heteroskedasticity-consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity', *Econometrica*, Vol. 48, pp. 817-838.

Citing Literature



[Download PDF](#)

ABOUT WILEY ONLINE LIBRARY

[Privacy Policy](#)
[Terms of Use](#)
[About Cookies](#)
[Manage Cookies](#)
[Accessibility](#)

[Wiley Research DE&I Statement and Publishing Policies](#)
[Developing World Access](#)

HELP & SUPPORT

[Contact Us](#)
[Training and Support](#)
[DMCA & Reporting Piracy](#)

OPPORTUNITIES

[Subscription Agents](#)
[Advertisers & Corporate Partners](#)

CONNECT WITH WILEY

[The Wiley Network](#)
[Wiley Press Room](#)

WILEY

Copyright © 1999-2023 John Wiley & Sons, Inc. All rights reserved

This website utilizes technologies such as cookies to enable essential site functionality, as well as for analytics, personalization, and targeted advertising purposes. You may change your settings at any time or accept the default settings. [Privacy Policy](#).

[Manage Preferences](#)

[Accept All](#)