

Artificial Neural Network Enhanced Parametric Option Pricing

**Andreou C. Panayiotis¹, Charalambous Chris², Martzoukos H.
Spiros^{3*}**

**University of Cyprus
Department of Public and Business Administration**

This Version: January 2006

JEL classification: G13, G14

Keywords: Option pricing, implied volatilities, implied parameters, artificial neural networks, optimization

Acknowledgements: This work has been partly funded by the Hermes European Center of Excellence in Computational Finance and Economics, and a University of Cyprus grant for research in ANN and Derivatives.

**1,2,3 PhD Candidate, Professor of Management Science and Assistant Professor of
Finance respectively**

* Corresponding author:

Spiros H. Martzoukos, Assistant Professor of Finance
University of Cyprus, Dept. of Public and Business Administration
P.O. Box 20537, CY 1678 Nicosia – Cyprus
Fax: +357-22-89 24 60, Tel.: +357-22-89 24 74
email: baspiros@ucy.ac.cy

Abstract

In this paper we explore ways that alleviate problems of nonparametric (artificial neural networks) and parametric option pricing models by combining the two. The resulting enhanced network model is compared to standard artificial neural networks and to parametric models with several historical and implied parameters. Empirical results using S&P 500 index call options strongly support our approach.