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Abstract

STATISTICAL ARBITRAGE OPPORTUNITIES RESULTING FROM VOLATILITY ERRORS AND OPTION MISPRICING

Development and publication of an option pricing model by Myron Scholes and Fisher Black in 1973 brought option theory to the forefront of financial theory as well as began a large body of research related to option theory. In the same year, the Chicago Board Options Exchange opened the world's largest secondary market for equity options. Since then both option research in academic settings and option trading in capital markets has expanded dramatically.

Option research has gravitated toward pricing models with a strong focus on volatility measurement and forecasting. Robert Engle won a Nobel Prize in Economics for his work on forecasting volatility. Option market professionals have focused on the use of trading strategies to identify arbitrage opportunities. This study merges the various aspects of option theory, specifically measurements of volatility, with the practical aspects of option trading strategies. The goal was to see if option theory could be used to identify statistical arbitrage opportunities from which trading strategies can be implemented to produce abnormal excess profits.

Historical pricing data on the S&P 100 Index call option (ticker symbol, OEX) was tracked historically, beginning in December 2006. Volatility anomalies were identified by measuring the implied volatility of each traded option. A ratio call write strategy was implemented and profit from the strategy was compared against a control group. Profits from the trades triggered by volatility events were significantly higher than the profits from all other trades. The results of this study indicate inefficiency exists in the OEX option market and that opportunities exist to produce abnormal excess profits. Further examination of the test data may reveal information about the evolution of capital

market efficiency. Additional studies and replication of this study, using different data sets, will provide greater insight into how capital markets evolve from inefficient, high profit potential markets, into efficient locations of capital exchange.