1126-62-263   **Elizabeth C Bradfield*** (`bradfiee@erau.edu`). *Introducing Secular Cycles into the Black-Scholes Equation.*

The purpose of this experiment was to create a new method for determining volatility for the S&P500. Via a multiple linear regression model, one is able to create a statistically significant model for the S&P500 using macroeconomic indicators as independent variables. From there, plotting the residuals compared to historical data gives a basic framework for this new definition of volatility, and by an extension of the famous Black-Scholes model, is hypothesized to instead of using stochastic methods for volatility, rather, the idea of secular cycles is introduced into the modeling. Numerical interpretation is utilized from the prior example residuals to fit a sinusoid wave which is hypothesized to be fit as a perturbation term into the modeling of Black-Scholes. (Received January 16, 2017)