1043-91-104   **Anirban Dutta*** (`anirban.dutta@wmich.edu`), Department of Mathematics, Western Michigan University, Kalamazoo, MI 48108-5248, and **Qiji J. Zhu** (`qiji.zhu@wmich.edu`), Department of Mathematics, Western Michigan University, Kalamazoo, MI 48108-5248. *Implementing a Robust Option Replacement Strategy.*

Pricing financial assets and derivatives is one of the most important issues in Mathematical Finance. It is shown that, given any profitable investment system and any reasonable utility function, one can theoretically find an option premium interval such that when the actual option premium falls outside of this interval one can improve the investment system by using call options. The improved strategy is a stable one consisting of investing in either of buying the asset, writing a covered call or buying a call option on the asset.

In this project we implement a robust investment/money-management option replacement trading strategy for improving a simple profitable trend following investment system for the SP-500 index. The improvement is measured by a stable version of the Kelly Criterion.

Our SP-500 based investment system made monthly investments only when the market is favorable, determined by a short term exponential moving average above a long term one. Rolling ex-ante tests on historical market data between 1998 - 2007 show that it can be significantly improved by replacing the index with writing a covered call option. A somewhat surprising implication is that the market premium for the call option of the index is favoring the writer of the option most of the time. (Received August 21, 2008)