1077-91-1563   **Esther F Jackson*** (`ejacksoh@masonlive.gmu.edu`). *Modern Portfolio Theory Enhanced by Manifold Learning.* Preliminary report.

In the realm of investment theory, Modern Portfolio Theory (MPT) remains the most important and influential mathematical model. Modern Portfolio Theory attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. The theory has been widely used in the financial industry. We examine the assumptions underlying MPT, and investigate replacing some of the underlying linearity assumptions with nonlinear approaches from manifold learning theory. (Received September 20, 2011)