

Real Estate Investment Thesis

A Real Estate Portfolio Optimizer Utilizing Spreadsheet Modeling with Markowitz Mean-Variance Optimization and Monte Carlo Simulation

By William F. Tucker
Johns Hopkins University

ABSTRACT

This paper is an abridged version of a real estate investment thesis completed for Johns Hopkins University. It provides a "roadmap" for applying Markowitz Portfolio theory and Monte Carlo simulations during spreadsheet modeling to create a Mean-Variance Optimization Spreadsheet tool for a portfolio of commercial properties.

By incorporating the concept of uncertainty, this regimen more accurately models real estate portfolio risk. The variance in returns as generated by the described model will be used as a proxy for risk during portfolio analysis.

After a quick summary of Real Estate cash flow modeling, Markowitz Portfolio, and Monte Carlo Simulation theories, the paper sets forth to demonstrate how a Real Estate Portfolio Optimizer spreadsheet was created for Real Estate Portfolio Managers, REIT Managers, and Real Estate Lenders to better assess the riskiness of a portfolio. Finally, a "User Manual" is provided to guide the reader in the operation of the software.

 [Click here to download the full paper](#)

Contact Information

William F. Tucker



(h) 202.752.4117 / (w) 410.747.5254



teamtuck@aol.com