SERIALLY PERSISTENT EXTREME RETURNS AND FAT-TAILED DISTRIBUTIONS ARE CONSISTENT WITH LARGE-SCALE AGENCY COSTS

- Study #3 Introduces Model for Persistence and Fat-Tailedness Discovered Empirically by Graff & Young
- Transaction Prices Benefit Management Objectives More Than Investor Returns
  - Difference Between Economically-Based Value and Transaction Price is Agency Cost Plus White Noise
- Appraiser Methodology Must Rationalize Difference Between Transaction Price and Comparable Values
  - Appraisers Compromise by Splitting the Difference
  - It Follows That Successive Appraisals Amortize the Agency Cost Over Several Years
  - Agency Cost Amortization Adds Persistent Nonrandom Bias Component to Appraisal Return Series
- Institutional Management Restrictions on Pricing Information Permit Large Agency Cost Distortions
  - Example of Asymmetric Information Market Distortions of 2001 Nobelists Akerlof, Spence and Stiglitz
  - Analogous to Agency Costs Induced by Accounting Shenanigans Uncovered in 2001-2002
    - Off-Balance-Sheet Debt, Telecommunications Industry Capacity Swaps
- Better Disclosure of Investment Information is Primary Solution to These Problems
  - This Study Uncovered the Problem in the Case of Real Estate and Proposed the Solution in 1997
REIT SHARE PRICES AND RETURNS REFLECT LARGE AGENCY COSTS

- Study #2 Extends Economic Effects of Restricted Real Estate Investment Information to the REIT Market
  - Graff & Young REIT Study Previously Showed That REITs Reflect Real Estate Serial Persistence
  - Study #3 Previously Showed That Real Estate Serial Persistence Reflects Agency Costs
  - Thus it was Evident Even Before Study #2 That REITs Reflect Real Estate Agency Costs

- REITs Overpay Routinely for Real Estate

- Agency Costs Imply Share Prices Below Net Asset Value and Underperformance in Investment Returns
  - REIT Data From Previous Decades is Consistent with This Analysis

- Successive Waves of REIT Reform Legislation Have Not Reformed Agency Cost Opportunities or Incentives
  - Future Share Prices Should Normally be Below Asset Value and Returns Continue to Underperform

- Excessive Agency Costs Have Been a Fixture of REITs for Decades
  - Excessive Agency Costs Are Relatively New to the Telecommunications and Energy Industries
  - Stock Market Oversight Authorities are Forcing Reform on the Larger Industries and Ignoring REITs
  - Study #2 Received "Out-of-the-Box Thinking" Award for Concepts That Became Mainstream in 2002
QUARTERLY DATA IS WORSE THAN ANNUAL DATA IN MODERN PORTFOLIO THEORY APPLICATIONS TO REAL ESTATE

- Portfolio Managers Prefer to Estimate Variances, Covariances and Correlations with Quarterly Data
  - More Sample Values Suggests More Accurate Estimates
  - Quarterly-Based Estimates are Noticeably Different from Corresponding Estimates from Annual Data

- Quarterly Property and Index Return Series Exhibit Seasonality in the form of Annual Bumps
  - Bumps Occur from Appraisal Capital Gains Computed At Most Annually, Usually at Year-End

- Study #1 Investigates Effect of Annual Bumps in Quarterly Data on Parameter Estimates
  - Annual Bumps Induce Upward Bias in Sample Variances
  - Annual Bumps Induce Bias in Sample Covariances and Correlations
    - Bias is Upward for Two Return Series with Annual Bumps in the Same Quarters
    - Bias is Downward for Two Return Series with Annual Bumps in Different Quarters

- Study #1 Uncovers Statistical Inaccuracies in Popular Real Estate Economic Geographical Studies
  - Invalidates Popular Conclusions about Economic Geographical Portfolio Diversification
  - Supports Conclusions of Award-Winning Graff & Young Correlations Study
TWO-COMPONENT REAL ESTATE INVESTMENT MODEL

- Study #4 Introduces an Investment Model Based on Occupancy Rights as the Source of Real Estate Value
- Occupancy Rights-Based Model Implies That Real Estate Has Two Investment Components
  - One Component Consists of Benefits Associated with Leased Occupancy Rights
    - Occupancy Rights Belong to Lessees
    - Source of Component Value is Expected Rent from Leases
    - Component is a Fixed-Income Asset
  - The Other Component Consists of Benefits Associated with Unleased Occupancy Rights
    - Occupancy Rights Belong To Property Owners
    - Component Encompasses All Property-Related Equity Investment Characteristics
- The Components Have Different Investment Risks and Expected Returns
  - The Equity Component Usually has Higher Expected Return Than the Fixed-Income Component
  - Equity Component Risk Exceeds Real Estate and Fixed-Income Risks but is Lower Than Stock Risk
- Often Possible to Separate Future Component Investment Returns and Assign Them to Separate Investors
- Stock-and-Bond Portfolio Risk Reduction with Equity Components is Better Than with Whole Real Estate
  - Investors Obtain More Portfolio Diversification for Less Cost


   (2000 Homer Hoyt Advanced Studies Institute Award, Best Innovative Thinking "Thinking Out of the Box" Research Paper Presented at the ARES Annual Meeting)

   (with James R. Webb)


   (with D. Cashdan)