Jaffe Greenwald

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EDUCATION

University of Arizona
Ph.D., Business Administration (Finance) — July 2019 –

Cornell University
M. Eng., Operations Research and Information Engineering — 2014 – 2016
B.S. Operations Research and Information Engineering — May 2014

RESEARCH INTERESTS

Asset Pricing – Anomalies and Alphas

WORKING PAPERS

[1] **"Anomalies, Roll's Critique, and Proxy Error"** Job Market Paper
- Semifinalist for one of the five best paper awards to be given at the 2023 Financial Management Association (FMA) Annual Meeting (the investment category)
- 2023 Financial Management Association (FMA) Annual Meeting (scheduled)
- University of Arizona (Feb. 2022, Scheduled for Sep. 2023)

WORKS IN PROGRESS

[1] **"Tax Loss Harvesting and Momentum"** (with Richard Sias)
[2] **"Factor Tilts or Active Tilts – Does Your Fund Look for the Value Factor or Value Investments?"** (with Richard Sias)
[3] **"Sorting the Sources of Economic and Statistical Significance in Asset Pricing Tests: a GRS Decomposition into PCA Factors"**
- University of Arizona (Feb. 2021 and Dec. 2021)

CONFERENCES & SEMINARS

Financial Management Association (FMA) 2023 Annual Meeting (scheduled)

TEACHING EXPERIENCE

Instructor, University of Arizona
Principles of Financial Management (Undergraduate, Online) — Summer 2023
Teaching evaluations (mean): 4.5

Personal Investing (Undergraduate, Hybrid)
In-person: Teaching evaluations (mean): 5.0 — Summer 2022
Online: Teaching evaluations (mean): 4.5 — Summer 2022

Master's Thesis (M.S. Finance)
Teaching evaluations (mean): 4.9 — Summer 2022
Teaching evaluations (mean): 4.7 — Summer 2021

Teaching Assistant, University of Arizona
Financial Management (M.B.A.) — 2019 – current
Fixed Income: Markets, Instruments, and Strategies (M.S. Finance) — 2019 – current

AWARDS

Semifinalist for one of the five best paper awards to be given at the 2023 Financial Management Association (FMA) Annual Meeting (the investment category)

PROFESSIONAL SERVICE

Conference paper reviewer
Eastern Finance Association (EFA) 2023, 11 articles

Internal Service

Finance Dept. Data Czar	2020 – current
Finance Dept. Internal Ph.D. Student Seminar: Leader and Organizer	2021 – 2023
M.B.A. DCF and financial modeling interview preparation	Spring 2023

PROFESSIONAL EXPERIENCE

DIA, Financial Consultant, New York, NY 2017 – 2018

References

Chris Lamoureux, Ph.D. (Dissertation Chair)
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Abstracts

"Anomalies, Roll's Critique, and Proxy Error" Job Market Paper
Anomalies generate proxy alpha. Roll (1977) critiques the use of alphas with respect to a proxy (proxy alphas), noting that they may not equal the alphas with respect to Sharpe's market factor (market alphas). I show that the Roll critique is not negligible. The difference between proxy and market alphas – proxy errors – are economically and statistically significant. Empirically, I find that 12% of the documented anomalies have statistically significant proxy errors. For these anomalies the average difference in annualized alphas ranges from .6% to 1.5%. The

corresponding percent change in annualized factor alphas ranges from 3% to 25%. Proxy error is an omitted variables bias. I develop a test that utilizes no arbitrage conditions to identify whether proxy error is negligible. I show that a beta weighted portfolio is most likely to be priced by the market and study the proxy alphas of these portfolios. Effectively, I measure proxy error by evaluating the inner product of proxy alphas and proxy betas. A larger inner product corresponds to a larger proxy error. Econometrically, this test is intuitive as omitted variable biases will impact both the vector of proxy alphas and the vector of proxy betas, by making the angle between the vectors smaller, which makes the inner product larger. Using simulations, I show that the correlations between the anomalies and the omitted variable best explain the data, motivating the use of anomalies with significant proxy errors as additional factors. Using the anomalies as additional factors, proxy errors are reduced when the added anomaly had significant proxy error. The proxy errors get remedied because the time-series volatility of the angle between the vectors increases – weakening the systematic relationship between proxy alphas and proxy betas. I determine the distribution of the test statistic under small samples and alternative hypotheses using simulation. The data supports the alternatives where the omitted variable has a small variance, which is consistent with the framework of Kandel and Stambaugh (1987), bolstering their rejection of the CAPM.

"Tax Loss Harvesting and Momentum" (with Richard Sias)
Evidence (e.g., Novy-Marx, 2012) that most stock return momentum arises from intermediate term (e.g., returns are more strongly related to returns over months -7 to -12 than -1 to -6) is inconsistent with most models of stock return momentum. We hypothesize that tax-loss selling may play a role in explaining these patterns. Consistent with our hypothesis we find that December and January exhibit a robust pattern with regard to the cross-sectional dependence of returns. Namely, December is positively cross-correlated with past months and January is negatively cross-correlated with past months and this pattern extends back more than one year.

"Factor Tilts or Active Tilts – Does Your Fund Look for the Value Factor or Value Investments?" (with Richard Sias)
We present a new decomposition of mutual funds activeness that partitions each funds' active bets into factor exposure versus security selection. Empirically, we find that mutual funds have strongly moved from factor strategies to security selection over our sample from 2002 to 2014. Specifically, the amount of the managers' portfolio that is unexplained by the factors is increasing over this sample period. The time series of factor tilts also provides evidence of whether mutual fund trading has reduced or eliminated known anomalies or whether the anomalies disappeared on their own. We find evidence consistent both with mutual funds trading to reduce anomalies as well as exacerbating anomalies. Funds in aggregate have a tilt toward long Asset Turnover (reducing the anomaly) as well as short Value (exacerbating the anomaly). In addition, the dispersion in tilts toward these factors increases over time.

"Sorting the Sources of Economic and Statistical Significance in Asset Pricing Tests: a GRS Decomposition into PCA Factors"
I show that an anomaly's economic significance (average squared alphas) and statistical significance (Gibbons, Ross, and Shanken (1989) GRS F-scores) can be decomposed across the principal factors (eigenvectors of the residual covariance matrix). While an anomaly may be both economically and statistically significant, it does not imply that there exists a principal factor that is both economically and statistically significant. I examine the statistical and economic significance of the documented anomalies via the principal factors. Consistent with PCA factor models, such as Kozak, Nagel, and Santosh (2018), large eigenvalue principal factors carry most of the economic significance across anomalies. However, most of the statistical significance is carried by small eigenvalue principal factors, which is corroborated by the GRS test rejection of Kozak, Nagel, and Santosh (2018)'s PCA factor model. Qualitatively, the statistical and economic significance come from different principal factors. I propose a test to examine which of the principal factors bear significant contributions to GRS F-scores and average squared alphas. Both metrics only receive significant contributions from the principal factors with the largest and smallest eigenvalues. If large eigenvalue principal factors represent risk factors and small eigenvalue principal factors represent mispricing, then anomalies reveal the existence of priced omitted risk factors and mispricing.