

Bingzhi Zhao

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Education

Ph.D. Candidate, Department of Economics, **Duke University**, 2011 – current.

Committee: Tim Bollerslev (chair), Jia Li, Andrew Patton, George Tauchen

B.S. Mathematics and Economics, **University of Wisconsin-Madison**, 2011

Computer Science and Economics, **Peking University**, 2007-2008

Employment

Quantitative Trading Strategist Intern, **Grantham Mayo Van Otterloo (“GMO”) & Co. LLC**, 2015

Research

Job Market Paper

An Efficient Factor from Basis Anomalies

A look-ahead-bias-free, ex-ante efficient portfolio from Size, B/M and Momentum anomalies has an ex-post Sharpe ratio of 2.3. It picks up the non-monotonic benefits from characteristics that cannot be captured by the multi-factors and eliminates 39 out of 42 unique anomalies. Using tests of cross-sectional regressions, mean-variance efficiency, miss-specification, model comparison and spurious factors, the 1-factor significantly out-perform the combined (or separate) 11 factors: MKT-Rf, SMB, HML, MOM, RMW, CMA, qME, qIA, qROE, QMJ, LIQ among combinations of 147 test assets. The efficient factor is priced at the firm-level with 12% per year spread. Optimal mix of new exotic characteristics can be engineered to pass existing testing tools as unique anomalies, yet are completely manifested by the efficient factor.

A theory where assets are priced recursively w.r.t. the group-specific efficient factor shows that anomalous predictabilities are equivalent to 1-factor pricing, regardless of rational/behavioral cause. An implied Stochastic Discount Factor return deduced from the efficient factor is consistent with economic theory.

Working Papers

Good Volatility, Bad Volatility and Expected Stock Return, with Tim Bollerslev and Sophia Zhengzi Li

Based on intra-day data for a large cross-section of individual stocks and newly developed econometric procedures, we decompose the realized variation for each of the stocks into separate so-called realized up and down semi-variance measures, or good and bad volatilities, associated

with positive and negative high-frequency price increments, respectively. Sorting the individual stocks into portfolios based on their normalized good minus bad volatilities results in economically large and highly statistically significant differences in the subsequent portfolio returns. These differences remain significant after controlling for other firm characteristics and explanatory variables previously associated with the cross-section of expected stock returns. The results also remain intact in double portfolio sorts designed to control for other high-frequency-based realized variation measures. By contrast, the strong negative association between the realized skewness measure and subsequent returns recently documented by Amaya, Christoffersen, Jacobs, and Vasquez (2016) is completely reversed after controlling for the individual stocks relative good minus bad volatility.

Factors and Their Economic Value in Volatility Forecast, with Lada Kyj

We propose a new family of simple and reliable realized volatility based forecasting models by exploiting the factor structure in the cross-section of volatility, named Factor Auto Regressive (FAR) models. Rather than being isolated, securities are linked with one another through the highly persistent and forecastable common factors. A comprehensive evaluation shows that models exploiting the simple factor structure are able to significantly out-perform (under-perform) the best existing models, for 87% (0%) of securities in all S&P500 constituents and 77% (0%) in the entire TAQ universe. Securities with high betas are expected to, and indeed receive even stronger gains in predictability. For a hypothetical mean-variance investor with perfect foresight in mean and correlations of asset returns, the improvement is worth up to 80bps per year over best existing models. The results stand strong to a long and exhaustive list of robustness checks

Teaching

Teaching Assistant, Fuqua School of Business, Duke University

Weekend Executive MBA, *Managerial Economics*, Professor Brendan Daley, 2012-2014

Global Executive MBA, *Managerial Economics*, Professor Brendan Daley, 2012-2014

Daytime MBA, *Strategy*, Professor Katherine Schipper, 2013-2014

Daytime MBA, *Strategy*, Professor Jennifer Francis, 2013

Teaching Assistant, Department of Economics, Duke University

Ph.D., *Econometrics Sequence I*, Professor Federico Bugni, 2012

Ph.D., *Econometrics Sequence II*, Professor Andrew Patton, 2012

Undergraduate, *Investments*, Professor Tim Bollerslev, 2013

Undergraduate, *Options and Derivatives*, Professor George Tauchen, 2014

Honors, Awards, and Fellowships

Muoio Family Fellowship, Duke University, 2016

Summer Research Fellowship, Department of Economics, Duke University, 2015

Michael Robison Memorial Fellowship, Duke University, 2013

Graduate Fellowship, Duke University, 2011

Phi Beta Kappa, University of Wisconsin-Madison, 2010

Frank C. Cady Scholar (Excellence in Pure Mathematics), University of Wisconsin-Madison, 2010
Dean's List of Distinguished Students, University of Wisconsin-Madison, 2009-2010
1st Place Award, International Essay Contest, University of Wisconsin-Madison, 2010

Skills

Computer Skills

Q/KDB, R, SQL (GMO internship)
Matlab, SAS, Unix (TAQ data/ PhD research)
C++, PHP (Peking University/ Wisconsin)

Language Skills

English (native)
Chinese (native)
Russian (basic)

Conferences

2014-SoFiE Summer School, Harvard University
2013-SoFiE Summer School, Oxford-Man Institute, Oxford University

References

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