Kewei Hou
820 Fisher Hall

The Ohio State University
Max Fisher College of Business
Department of Finance

Business Finance 8255
Advanced Asset Pricing 2

1. Course Description

The course will present a detailed look at the state of the anomaly and factor pricing literature as it stands today. The goal is to acquaint you with the major themes and important questions that are the subjects of on-going investigations, and to equip you with a solid understanding of the primary quantitative tools to enable you to participate in and to contribute to these investigations.

The course can be divided into three parts. In the first part, we dive into the anomaly literature, which is the scientific foundation of quantitative investing. Anomalies are repeated patterns that make stock returns look predictable based on accounting variables or trading signals. They are typically interpreted as evidence of market inefficiency (although they don't have to be), hence the word "anomaly". Our objective is to use a consistent set of procedures and up-to-date market data to check the robustness of entire set of anomaly strategies. While there are plenty of opportunities in the market place for quantitative investing, there is also tons of noise. And the key is to be able to separate true signals from the noise, and focus on robust strategies.

In the second part of the course, we will introduce to you some of the widely used factor models for portfolio risk optimization, active-risk budgeting, performance evaluation, and style/attribution analysis. We will discuss in details how these factor models are constructed, their underlying economic intuitions, and the relations between different factor models. More importantly, we will compare the performance of different factor models by using them to unify and explain the robust anomaly strategies discovered during the first part of our course. What we are interested in is which factor model(s) can explain the largest set of robust anomaly strategies. What are the economic intuitions behind the performance differences? For those anomaly strategies that cannot be explained by the factor models investigated, how can we repackage them with the factor models to create trading strategies that offer superior risk-return tradeoffs?

In the third and final part of the course, we will introduce to you some of the popular value investing strategies used by active funds. We will then use recently developed factor models to performance benchmark these value investing strategies as well as active value funds. We ask the following questions: Do these value investing strategies/funds offer superior returns (alphas) relative to the factor models? If not, what factors are responsible for explaining the returns of these strategies? What are the intuitions? If there are alphas unexplained, what important dimensions in expected returns that these strategies/funds are exploiting but missed by the factor models? What are the future directions of active management?

The course will meet twice a week. The meetings will be centered around a set of research papers and books that have important implications for investment management practice. You will be expected to have read the papers prior to the classes and to participate in the discussions. Besides readings, your responsibilities for the course will include an empirical project and an in-class final exam.

2. Course Outline

I. What are anomalies?
II. Major anomaly categories.
- Momentum
- Value-versus-growth
- Investment
- Profitability
- Intangibles
- Trading frictions

III. Assessing the profits from investing in anomalies.
- Techniques
- Results

IV. Which of the anomalies do we really believe?
- Is it all data mining?
- Are those "profits" really there?

V. How many anomalies are really unique?
- How to shrink/unify the anomaly space?

VI. The history of factor models.
- CAPM
- Fama and French three-factor model
- Carhart four-factor model
- Fama-French five-factor model
- Fama-French six-factor model
- Barillas-Shanken six-factor model
- Stambaugh-Yuan four-factor model
- Daniel-Hirshleifer-Sun three-factor model
- Hou-Xue-Zhang q-factor model
- Hou-Mo-Xue-Zhang q^5 model

VII. The relation between factor models and anomalies.
- A horse race: Which factor models are most successful at explaining anomalies?

VIII. The economic intuitions behind q and q^5 models.
- The investment CAPM.

IX. How to invest in robust anomalies and factor models?
X. Security analysis and active management.
- What are the popular value investing strategies?
- Are they really "active"?

XI. The relation between active and passive investing.

- Can value investing strategies beat factor models?
- Can active value funds beat factor models?

XII. The future of active management.

3. Course Reading List

Graham, B., and D. L. Dodd, 1940, “Security Analysis,” The classical 1940, 2nd ed., New York: Whittlesey House, McGraw-Hill Book Company.

Graham, B., 1973, “The Intelligent Investor,” 4th ed., New York: Harper & Brothers.

Fama, E. and J. MacBeth, 1973, "Risk, Return, and Equilibrium: Empirical Tests," Journal of Political Economy 81, 607-636.

Fama, E. and K. French, 1992, "The Cross-Section of Expected Stock Returns," Journal of Finance 47, 427-465

Fama, E. and K. French, 1993, “Common Risk Factors in the Returns on Stocks and Bonds,” Journal of Financial Economics 33, 3-56.

Fama, E. and K. French, 1996, “Multifactor Explanations of Asset Pricing Anomalies,” Journal of Finance 51, 55-84.

Carhart, M., 1997, “On Persistence in Mutual Fund Performance,” Journal of Finance 52, 57-82.

Frankel, R., and C. M. C. Lee, 1998, “Accounting valuation, market expectation, and cross-sectional stock returns,” Journal of Accounting and Economics 25, 283-–319.

Piotroski, J. D., 2000, “Value investing: The use of historical financial statement information to separate winners from losers,” Journal of Accounting Research 38, Supplement: Studies on accounting information and the economics of the firm, 1—41.

Greenblatt, J., 2005, “The Little Book That Beats the Market,” John Wiley & Sons, Inc.

Fama, E. and K. French, 2006, “Profitability, Investment and Average Returns,” Journal of Financial Economics 82, 491-518.

Fama, E. and K. French, 2008, “Dissecting Anomalies,” Journal of Finance 63, 1653-1678.

Greenblatt, J., 2010, “The Little Book That Still Beats the Market,” John Wiley & Sons, Inc.

Stambaugh, R., J. Yu and Y. Yuan, 2012, "The Short of It: Investor Sentiment and Anomalies," Journal of Financial Economics 104, 288-302.

Penman, S. H., 2013, "Financial Statement Analysis and Security Valuation," 5th edition, McGraw-Hill Irwin.

Ang, A., 2014, "Asset Management: A Systematic Approach to Factor Investing," 1st edition, Oxford University Press.

Penman, S. H., and J. L. Zhu, 2014, "Accounting anomalies, risk, and return," The Accounting Review 89, 1835–1866.

Hou, K., C. Xue, and L. Zhang, 2015, "Digesting Anomalies: An Investment Approach," Review of Financial Studies 28, 650-705.

Fama, E. and K. French, 2015, "A 5-factor Asset Pricing Model," Journal of Financial Economics 116, 1–22.

McLean, R.D. and J. Pontiff, 2016, "Does Academic Research Destroy Stock Return Predictability?" Journal of Finance 71, 5-32.

Stambaugh, R. and Y. Yuan, 2017, "Mispricing Factors," Review of Financial Studies 30, 1270-1315.

Asness, C. S., A. Frazzini, R. Israel, T. J. Moskowitz, and L. H. Pedersen, 2018, "Size matters, if you control your junk," Journal of Financial Economics 129, 479–509.

Barillas, F. and J. Shanken, 2018, "Comparing Asset Pricing Models," Journal of Finance 73, 715–754.

Bartram, S. M., and M. Grinblatt, 2018, "Agnostic fundamental analysis works," Journal of Financial Economics 128, 125–147.

Fama, E. and K. French, 2018, "Choosing Factors," Journal of Financial Economics 128, 234-252.

Frazzini, A., D. Kabiller, and L. H. Pedersen, 2018, "Buffett's alpha," Financial Analysts Journal 74, 35–55.

Asness, C. S., A. Frazzini, L. H. Pedersen, 2019, "Quality minus junk," Review of Accounting Studies 24, 34–112.

Hou, K., H. Mo, C. Xue, and L. Zhang, 2019, "Which Factors?" Review of Finance 23, 1-35.

Ball, R., J. Gerakos, J. Linnainmaa, and V. Nikolaev, 2020, "Earnings, retained earnings, book-to-market in the cross section of expected returns," Journal of Financial Economics 135, 231–254.

Hou, K., C. Xue, and L. Zhang, 2020, "Replicating Anomalies," Review of Financial Studies 33, 2019-2133.

Daniel, K., D. Hirshleifer, and L. Sun, 2020, "Short- and Long-Horizon Behavioral Factors," Review of Financial Studies 33, 1673-1736.

Hou, K., H. Mo, C. Xue, and L. Zhang, 2021, "An Augmented q-factor Model with Expected Growth," Review of Finance 15, 1-41.

Hou, K., H. Mo, C. Xue, and L. Zhang, 2022, "The Economics of Security Analysis," forthcoming Management Science.