

**UNIVERSITY OF UTAH
DAVID ECCLES SCHOOL OF BUSINESS**

Advanced Empirical Asset Pricing

Semester: Fall 2019
Class: Finance 7850
Class Time: Wed 1 - 4 pm
Course website: Canvas
Classroom: SFEBB 5122

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Teaching Assistant: TBA

COURSE DESCRIPTION

The primary purpose of this course is to help you develop research interests in the area of finance, particularly in the area of empirical asset pricing. Another purpose of this course is for you to start developing your own research agenda. We will hopefully accomplish these goals by giving you a strong background in investments research, primarily through our discussion of research papers, background text readings, and weekly paper idea presentations and discussions. I will treat you as junior colleagues, not as students. As such, I expect you to take responsibility for learning the material and developing a *passion* for research. My hope is that through this course, you will start to find areas in the finance literature that strongly interest you.

REQUIRED MATERIAL

Modern Portfolio Theory and Investment Analysis, by Elton, Gruber, and Goetzmann, 9th Edition.

The Econometrics of Financial Markets, by Campbell, Lo and MacKinlay, 1st Edition.

Market Liquidity Theory, Evidence, and Policy, by Foucault, Pagano, and Roell, 1st Edition.

Programming Languages

Matlab
Python
R
SAS
Stata

COURSE STRUCTURE

Readings: You will be assigned roughly three papers a week to read. During a given class, each paper will be presented by a student. We will assign the papers on the first day of class. If we have more than three students in the class we will also have another student provide a critique of the paper.

Writing: Every week each students will be required to write a paper introduction (2-3 pages long) which develops ideas for a new paper related to the papers from that week. This is the main point of the course: to give you LOTS of practice in idea generation, which, when we get right down to it, is what makes a successful research professor. If you can't come up with good paper ideas, it is likely a signal that you have picked the wrong profession. After students present the 3 research papers for the day, we will have presentations of the paper introductions. After the introductions, we will discuss your ideas and hopefully point out ways in which you could improve your paper. My hope is that these paper introductions will turn into actual quality research papers.

Your paper introduction should be related to a follow up research question from the papers of that week. However, and this is important, I want it to be a relevant and current research question. Since some of the papers we cover will be "golden oldies," that means you will be responsible for learning the recent related literature and coming up with an idea that is relevant today. There are a few ways to quickly get up to speed on a given finance topic, including Google Scholar and www.ssrn.com.

The presentation format for the assigned weekly papers and introductions is a power point presentation. Please make copies of your paper presentations and introductions to pass out to your fellow students and me. You will have about 20 minutes to present each paper and about 10-15 minutes to present your introductions.

Coding: If you do empirical work, a large chunk of your career will be spent programming. As such, you need to be proficient in a variety of languages, each of which has benefits and drawbacks. We will do weekly replications of the paper that are assigned for reading. The replications will be of a specific table in each paper, and will be required to be done in different languages for different papers. The languages that are dominant in finance are SAS, Stata, R, Matlab, and Python. We will work in all of these.

Final: The final exam will be handed out the last day of class and will be due one week later via email.

GRADING

Your performance in the components of this course will be weighted as follows:

Readings:	25%
Introductions:	25%
Coding:	25%
Final Exam:	25%

Tentative Course Calendar:

Topic	
1. 08/21/2019	Succeeding in Academia
2. 08/28/2019	Writing a Good Paper
3. 09/04/2019	Event Studies
4. 09/11/2019	Factors
5. 09/18/2019	News
6. 09/25/2019	Limits to Arbitrage
7. 10/02/2019	Newer Anomalies
10/09/2019	NO CLASS
8. 10/16/2019	Mutual Funds / Hedge Funds
9. 10/23/2019	Other Asset Classes
10. 10/30/2019	Algorithmic Trading / HFT
11. 11/06/2019	Liquidity
12. 11/13/2019	Time Series Predictability
13. 11/20/2019	Data Snooping
11/27/2019	NO CLASS
14. 12/04/2019	Behavioral
12/11/2019	1 pm - Final Due

Class 0, Before the Semester Starts: The capital asset pricing model (CAPM); theory and empirical testing. We will not explicitly discuss these papers in class.

The Econometrics of Financial Markets

Complete Cochrane's online Intro to Asset Pricing Course (<https://www.canvas.net/browse/uc-booth/courses/asset-pricing>)

Sharpe, W., 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance* 19: 425-442.

Fama, E., and Macbeth, J., 1973. Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy* 81: 607-636.

Roll, R., and Ross, S., 1980. An empirical examination of the arbitrage pricing theory. *Journal of Finance* 35: 1073-1103.

Dhrymes, P.J., Friend, I., and Gultekin, B., 1984. A critical reexamination of the empirical evidence on the arbitrage pricing theory. *Journal of Finance* 39: 323-346.

Chen, N., Roll, R., and Ross, S., 1986. Economic forces and the stock market. *Journal of Business* 59: 383-403.

Class 1: How to be a successful research professor

What does it take to get a good job? Resume examples.

Rookies: examples of good and bad vitas.

Fifth and sixth year assistant professors: examples of good and bad vitas.

Career strategies.

Rookies

Assistant professor years (first year, 3rd and 4th year reviews, pre-tenure year.)

Tenure.

What does it take to get tenure: teaching, research, outside letters. What happens if you do not get tenure?

Readings:

Read the entire book, *Modern Portfolio Theory and Investment Analysis*. It will bring us all up to an advanced MBA level.

Butler, A.W. and Crack, T.F., 2012. The academic job market in finance: An updated rookie's guide. Working Paper.

Chance, D. 2005. Academic finance as a career, Working Paper.

Heck, J. L., 2006. Establishing a pecking order for finance academics: Ranking of U.S. finance doctoral programs. *Review of Pacific Basin Financial Markets and Policies* 10: 479-490.

Swidler S, and Goldreyer E, 1998. The value of a finance journal publication, *Journal of Finance* 53: 351-363.

Your assignment for today's class: Glance through the above 3 papers and come to class with a few academic finance resumes. Bring an example of a last year doctoral student, first year assistant professor, and a fifth or sixth year assistant professor. For each category, bring an example of someone who is successful and someone who is not likely to succeed.

Assign paper presentations and paper introductions for the semester's papers

Class 2: How to write a good paper

What is a "good" paper? Example.

For better or worse, it is defined by journal placement Paper style for placement in the top journals

Layout of the paper

Intro, theory or literature review, data and methodology, results, conclusion, References, tables, figures, total length of the paper

What makes a good empirical asset pricing paper?

The "hook," proper motivation, resolving a great mystery, clearly communicating your results

Details of the introduction

How to write a good paper

Find an unresolved *specific* issue that people care about. Best paper is one where the results are interesting no matter how they turn out.

Resources

SSRN

Journal web sites

Jstor

Google Scholar

Links to all papers which reference a given paper

How to get publicity for your new paper

Posting papers on SSRN

Conferences (rankings)

Sending the paper to people that might be the referee or might provide helpful feedback

The journal submission process

Referee reports. Example 1

Dealing with a rejection

The appeals process

Dealing with a revise and resubmit

Readings:

Read the entire book, *Market Liquidity Theory, Evidence, and Policy*. It will bring us all up to an advanced MBA level.

Cochrane, J., 2005. Writing tips for Ph.D. students, Working Paper. Paper examples: paper 1, paper 2, paper 3

Referee report example 1, referee report example 2, response to referee report 2.

Spiegel, M., 2012. Reviewing less - Progressing more, *Review of Financial Studies* 25: 1331-1338.

JFE tips for writers

JFE tips for writers 2

TAR comments.

Your assignment for today's class: Read Cochrane's paper. Read the example papers from a flow/paper layout standpoint. Read the example referee reports. Bring a copy of the worst written finance paper you can find. Bring a copy of the best written finance paper you can find. Read Spiegel's paper on reviewing, JFE tips for writers, and TAR comments.

Class 3: Event Studies

*Rindi, B. and Werner, I.M., 2017. US tick size pilot. Working Paper.

Boehmer, E., Jones, C.M. and Zhang, X., 2013. Shackling short sellers: The 2008 shorting ban. *Review of Financial Studies* 26: 1363-1400.

Cieslak, A., Morse, A. and Vissing-Jorgensen, A., 2018. Stock returns over the FOMC cycle. *Journal of Finance* forthcoming.

Class 4: Factors

*Fama, E.F. and French, K.R., 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33: pp.3-56.

Feng, G., Giglio, S. and Xiu, D., 2019. Taming the factor zoo: A test of new actors. Working Paper.

Fama, E.F. and French, K.R., 2015. A five-factor asset pricing model. *Journal of Financial Economics* 116:1-22.

Hou, K., Xue, C. and Zhang, L., 2015. Digesting anomalies: An investment approach. *Review of Financial Studies* 28: 650-705.

Kozak, S., Nagel, S. and Santosh, S., 2019. Shrinking the cross-section. *Journal of Financial Economics* forthcoming.

Class 5: News

Busse, J.A. and Green, T.C., 2002. Market efficiency in real time. *Journal of Financial Economics*, 65(3), pp.415-437.

*Hu, G.X., Pan, J. and Wang, J., 2017. Early peek advantage? Efficient price discovery with tiered information disclosure. *Journal of Financial Economics* 126: 399-421.

Engelberg, J., Sasseville, C. and Williams, J., 2012. Market madness? The case of mad money. *Management Science* 58: 351-364.

Class 6: Limits to Arbitrage

Chu, Y., Hirshleifer, D. and Ma, L., 2017. The causal effect of limits to arbitrage on asset pricing anomalies. Working Paper.

*Ljungqvist, A. and Qian, W., 2016. How constraining are limits to arbitrage? *Review of Financial Studies* 29: 1975-2028.

Hanson, S.G. and Sunderam, A., 2013. The growth and limits of arbitrage: Evidence from short interest. *Review of Financial Studies* 27: 1238-1286.

Class 7: Newer Anomalies

*Frazzini, A. and Pedersen, L. H., 2014. Betting against beta, *Journal of Financial Economics* 111: 1-25.

Linnainmaa, J.T. and Roberts, M.R., 2018. The history of the cross-section of stock returns. *Review of Financial Studies* 31: 2606-2649.

Arnott, R.D., Clements, M., Kalesnik, V., and Linnainmaa, J.T., 2019. Factor momentum. Working Paper.

Moreira, A. and Muir, T., 2017. Volatility-managed portfolios. *Journal of Finance* 72: 1611-1644.

Class 8: Mutual Funds / Hedge Funds

Fama, E. F. and French, K. R., 2010. Luck versus skill in the cross section of mutual fund returns. *Journal of Finance* 65: 1915-1947.

*Berk, J. and van Binsbergen, J., 2015. Measuring skill in the mutual fund industry. *Journal of Financial Economics* 118: 1-20.

Koijen, R., 2014. The Cross-section of managerial ability, incentives, and risk preferences. *Journal of Finance* 69: 1051-1098.

Class 9: Other Asset Classes

*Cieslak, A. and Povala, P., 2015. Expected returns in Treasury bonds. *Review of Financial Studies* 28: 2859-2901.

Bansal, R. and Shaliastovich, I., 2013. A long-run risks explanation of predictability puzzles in bond and currency markets. *Review of Financial Studies* 26: 1-33.

Hong, H. and Yogo, M., 2012. What does futures market interest tell us about the macroeconomy and asset prices?. *Journal of Financial Economics* 105: 473-490.

Class 10: Algorithmic Trading / High Frequency Trading

Brogaard, J., Hendershott, T. and Riordan, R., 2014. High-frequency trading and price discovery. *Review of Financial Studies* 27: 2267-2306.

*Weller, B.M., 2017. Does algorithmic trading reduce information acquisition? *Review of Financial Studies* 31: 2184-2226.

Hendershott, T., Jones, C.M. and Menkveld, A.J., 2011. Does algorithmic trading improve liquidity?. *Journal of Finance* 66: 1-33.

Class 11: Liquidity

Brunnermeier, M. and Pedersen, L. H., 2009. Market liquidity and funding liquidity. *Review of Financial Studies* 22: 2201-2238.

Korajczyk, R. and Sadka, R., 2008. Pricing the commonality across alternative measures of liquidity. *Journal of Finance* 87: 45-72.

*Goyenko, R.Y., Holden, C.W. and Trzcinka, C.A., 2009. Do liquidity measures measure liquidity?. *Journal of Financial Economics* 92: 153-181.

Nagel, S., 2012. Evaporating liquidity. *Review of Financial Studies* 25: 2005-2039.

Class 12: Time Series Predictability

Welch, I. and Goyal, A., 2007. A comprehensive look at the empirical performance of equity premium prediction. *Review of Financial Studies* 21: 1455-1508.

Cochrane, J. H., 2011. Presidential address: Discount rates. *Journal of Finance* 66: 1047- 1108.

*Moskowitz, T.J., Ooi, Y.H. and Pedersen, L.H., 2012. Time series momentum. *Journal of Financial Economics*. 104: 228-250.

Haddad, V., Kozak, S. and Santosh, S., 2018. The economics of factor timing. Working Paper.

Class 13: Data Snooping

Harvey, C., Liu, Y., and Zhu, H., 2016. ...and the cross-section of expected returns. *Review of Financial Studies* 29: 5-68.

*McLean, D. and Pontiff, J., 2016. Does academic publication destroy stock return predictability? *Journal of Finance* 71: 5-32.

Harvey, C. 2019. Replication in financial economics. Working Paper.

Chordia, T., Goyal, A. and Saretto, A., 2017. P-hacking: Evidence from two million trading strategies. Working Paper.

Class 14: Behavioral

Engelberg, J. and Gao, P., 2011. In search of attention. *Journal of Finance* 66: 1461-1499.

*Savor, P.G., 2012. Stock returns after major price shocks: The impact of information. *Journal of Financial Economics*. 106: 635-659.

Da, Z., Engelberg, J. and Gao, P., 2014. The sum of all FEARS investor sentiment and asset prices. *Review of Financial Studies* 28: 1-32.

There are far too many papers than we have time for. Here is a list of other papers I think are important that we do not have time to cover.

Volatility

Dew-Becker, I., Giglio, S., Le, A., and Rodriguez, M., 2017. The price of variance risk. *Journal of Financial Economics* 123: 225-250.

Drechsler, I. and Yaron, A., 2011. What's vol got to do with it? *Review of Financial Studies* 24: 1-45.

Chen, I., 2018. The VIX premium, *Review of Financial Studies* forthcoming.

Cross Section

Fama, E., and French, K., 1992 The cross-section of expected stock returns. *Journal of Finance* 47: 427-466.

Classic Anomalies

De Bondt, W.F. and Thaler, R., 1985. Does the stock market overreact? *Journal of Finance* 40: 793-805.

Bernard, V.L. and Thomas, J.K., 1989. Post-earnings-announcement drift: delayed price response or risk premium? *Journal of Accounting Research* 27: 1-36.

Jegadeesh, N. and Titman, S., 1993. Returns to buying winners and selling losers: Implications for stock market efficiency. *Journal of Finance* 48: 65-91.

Hou, K., Xue, C. and Zhang, L., Replicating anomalies. *Review of Financial Studies* forthcoming.

Market Microstructure

Brogaard, J. and Pan, J., 2018. Dark trading and the fundamental information in stock prices. Working Paper.

Diether, K.B., Lee, K.H. and Werner, I.M., 2009. It's SHO time! Short-sale price tests and market quality. *Journal of Finance* 64: 37-73.

Anderson, M. and Stulz, R.M., 2017. Is post-crisis bond liquidity lower? Working Paper.

Frontiers of Research

Adrian, T, Etula, E., and Muir, T., 2014. Financial intermediaries and the cross section of asset returns. *Journal of Finance* 69: 2557-2596.

Keloharju, M., Linnainmaa, J. and Nyberg, P., 2017. Seasonal reversals in expected stock returns. Working Paper.

Brogaard, J. and Zareei, A. 2018. Machine learning and the stock market. Working Paper.

Cooper, M.J., Gulen, H. and Schill, M.J., 2008. Asset growth and the cross-section of stock returns. *Journal of Finance* 63: 1609-1651.

Gu, S., Kelly, B. and Xiu, D., 2018. Empirical asset pricing via machine learning. Working Paper.

Kelly, B.T., Pruitt, S. and Su, Y., 2019. Characteristics are covariances: A unified model of risk and return. *Journal of Financial Economics* forthcoming.

Ke, Z.T., Kelly, B.T. and Xiu, D., 2019. Predicting returns with text data. Working Paper.

Daniel, K., Mota, L., Rottke, S. and Santos, T., 2017. The cross-section of risk and return. Working Paper.

Daniel, K., Hirshleifer, D. and Sun, L., 2017. Short-and long-horizon behavioral factors. Working Paper.

Herskovic, B., Moreira, A. and Muir, T., 2019. Hedging risk factors. Working Paper.

Brown, G.W., Howard, P. and Lundblad, C.T., 2019. Crowded trades and tail risk. Working Paper.

Finance in Mainstream Entertainment

Below is an abridged list of books and movies that you can consume for fun while still learning more about finance. This list is for your own pleasure and is not necessary to read/view to perform well in my class.

Books

Hedge Funds

More Money than God (Sebastian Mallaby)

Inside the House of Money (Steven Drobny)

Historical Perspective

Devil Take the Hindmost (Edward Chancellor)

The Ascent of Money (Niall Ferguson)

Manias, Panics, and Crashes (Robert Aliber and Charles Kindleberger)

This Time Is Different (Carmen Reinhart and Kenneth Rogoff)

The Number (Alex Berenson and Mark Cuban)

The Ponzi Scheme Puzzle (Tamar Frankel)

Historical Narratives

The Great Crash 1929 (John Galbraith)

The Match King (Frank Partnoy)

The Best Way To Rob A Bank Is To Own One (William Black)

All the Devils Are Here (Bethany McLean and Joe Nocera)

Fool's Gold (Gillian Tett)

The Great Bull Market (Robert Sobel)

Models Behaving Badly (Emanuel Derman)

The Land That Never Was (David Sinclair)

Movies

Enron: The Smartest Guys in the Room (2005)

Wall Street (1987)

The Wolf of Wall Street (2013)

Margin Call (2011)

Trading Places (1983)

Floored (2009)

Rogue Trader (1999)

Barbarians at the Gate (1993)

The Big Short (2015)