**\*\* ADVANCED INVESTMENTS \*\***

**Professor Matti Suominen**

**SYLLABUS 2023**

**Pre-requisite: Derivatives and Fixed Income**

This course provides a technical introduction to financial markets and asset pricing theories under perfect and imperfect information. We first examine traditional continuous time finance models of securities pricing; and then, both theoretically and empirically, look at trading rules and investment strategies that are derived from these models. Next, we examine models of imperfect financial markets and various investment strategies that are founded by the theories. In addition, we study the role of hedge funds in the securities markets. The course is suitable for mathematically oriented Masters students seeking to develop a deeper understanding of financial markets, modern finance theory, quantitative finance, trading, and role of hedge funds in the financial market. Course requires a basic understanding of derivatives.

Course can be completed in two ways: Either by taking an exam or by writing an app. 20-page independent study on a subject directly related to the course material (the topic must be approved by the Professor).

Exercises comprise an integral part of the program. Through exercises a student can earn 10 bonus points to be added to the exam score (max 100) or the score from the written report (max 100).

Exercise sessions are organized by Paul Rintamäki. There will be homework assignments. Session times are in MyCourses.

**Course structure:**

**I. INTRODUCTION TO THE COURSE**

**L-1: 4.9.23. 14.15 -15.45 (F101). Introduction to financial market imperfections and investment strategies**

* Etula, Rinne, Suominen and Vaitttinen, 2020, Dash for Cash: Monthly Market Impact of Institutional Liquidity Needs, *Review of Financial Studies*, [link](https://academic.oup.com/rfs/article/33/1/75/5494694?login=true)
* Moskowitz T. J., Y. H. Ooi L. H. Pedersen, ”Time series Momentum,” *Journal of Financial* *Economics*, 104 (2012) , 228-250, [link](https://www.sciencedirect.com/science/article/pii/S0304405X11002613)
* Pitkäjärvi, Suominen and Vaittinen, 2020, Cross Asset Signals in Time Series Momentum, *Journal of Financial Economics*, [link](https://www.sciencedirect.com/science/article/pii/S0304405X19302156)

**II. FINANCE THEORY UNDER PERFECT INFORMATION**

**L-2: 7.9.23. 12.15 - 13.45 (F101). Investment and portfolio choice in discrete time**

**L-3: 11.9.23. 14.15 - 15.45 (F102). Modeling financial markets in continuous time I**

- Hull, Ch. 12, 13

- Black & Scholes, 1973, The Pricing of Options and Corporate Liabilities, *Journal of Political Economy.* [link](http://www.jstor.org.libproxy.aalto.fi/stable/1831029)

**L-4: 14.9.23. 12.15 – 13.45 (T004). Modeling financial markets in continuous time II**

- Hull Ch 25, 26

**EXERCISE-1: 14.9.23. 14.15 - 15.45 (V001)**

**III. FINANCE THEORY UNDER IMPERFECT INFORMATION AND MARKET FRICTIONS**

**L-5: 18.9.23. 14.15 – 15.45 (U006). Options and the term structure of interest rates.**

- Hull Ch 25, 26

- Driessen and Maenhout, 2007,An Empirical Portfolio Perspective on Option Pricing Anomalies, Review of Finance**,** [link](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=424384)

- Duarte, Longstaff and Yu, Risk and Return in Fixed Income Arbitrage: Nickels in front of a Steamroller? *Review of Financial Studies*, 2006, [link](http://www.jstor.org.libproxy.aalto.fi/stable/4494787)

**L-6: 21.9.23. 12.15 - 13.45 (F101). Modeling financial markets**

- Li and Suominen (2021) working paper, ssrn, [link](http://dx.doi.org.libproxy.aalto.fi/10.1016/S1386-4181%2801%2900024-6)

- Grossman and Stiglitz, 1980, On the Impossibility of Informationally Efficient Markets, *American Economic Review,* [link](http://www.jstor.org.libproxy.aalto.fi/stable/1805228)

- Kyle, 1985, Continuous Auctions and Insider Trading, *Econometrica* [link](https://www.jstor.org/stable/1913210?seq=1#metadata_info_tab_contents)

**EXERCISE-2: 21.9.23. 14.15 - 15.45 (V002)**

**L-7: 25.9.23. 14.15 - 15.45 (U006). Modeling financial markets II**

- Grossman and Miller, 1988, Liquidity and Market Structure, *Journal of Finance* [link](http://www.jstor.org.libproxy.aalto.fi/stable/2328186)

* Brunnermeier and Pedersen, 2008, Market Liquidity and Funding Liquidity, *Review of Financial Studies*, [link](http://www.jstor.org.libproxy.aalto.fi/stable/30225714)
* Duffie, Presidential Address: Asset Price Dynamics with Slow-Moving Capital, 2010, *Journal of Finance*, [link](http://www.darrellduffie.com/uploads/pubs/DuffieAFAPresidentialAddress2010.pdf)
* Gromb and Vayanos, 2010, Limits of Arbitrage: The State of the Theory, *Annual Review of* *Financial Economics*, [link](http://personal.lse.ac.uk/vayanos/Papers/LOAST_ARFE2010.pdf)
* Garleanu, Pedersen, Efficiently Inefficient Markets for Assets and Asset Management, 2018, WP, [link](https://www.jstor.org/stable/26654662?searchText=Efficiently+Inefficient+Markets+for+Assets+and+Asset+Management&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3DEfficiently%2BInefficient%2BMarkets%2Bfor%2BAssets%2Band%2BAsset%2BManagement&ab_segments=0%2Fbasic_search_gsv2%2Fcontrol&refreqid=fastly-default%3Af331d5eaf834d40188b89d2a9357a78b)

**L-8: 28.9.23. 12.15 – 13.45 (T004). Liquidity, hedge funds and asset prices I**

 - Pastor and Stambaugh, 2003, Liquidity Risk and Expected Stock Returns, *Journal of Political*

 *Economy* [link](http://www.jstor.org.libproxy.aalto.fi/stable/3555255)

- Amihud, 2002, Illiquidity and Stock Returns: Cross Section and Time-Series Effects, *Journal of Financial Markets* [link](http://dx.doi.org.libproxy.aalto.fi/10.1016/S1386-4181%2801%2900024-6)

- Jylhä, Rinne and Suominen, 2014, Do Hedge Funds Supply or Demand Liquidity, *Review of Finance*, [link](https://academic.oup.com/rof/article/18/4/1259/1607281?login=true)

- Khandani and Lo, 2010, What happened to the quants in August 2007?: Evidence from factors and transactions data, *Journal of Financial Markets,* [link](http://dx.doi.org.libproxy.aalto.fi/10.1016/j.finmar.2010.07.005)

**L-9: 3.10.23. 8.15-9.45 (V002) Liquidity, hedge funds and asset prices II**

- Gatev, Goetzmann and Rouwenhorst, 2006, Pairs Trading: Performance of a relative-value arbitrage rule, *Review of Financial Studies*, [link](http://www.jstor.org.libproxy.aalto.fi/stable/3844014)

- Sadka, 2010, Liquidity risk and the cross-section of hedge-fund returns, *Journal of Financial Economics*,[link](http://dx.doi.org.libproxy.aalto.fi/10.1016/j.jfineco.2010.05.001)

- Nagel, 2011, Evaporating Liquidity, The Review of Financial Studies, [link](https://academic.oup.com/rfs/article/25/7/2005/1602153?login=true)

- Russell Jame, 2018, Liquidity Provision and the Cross Section of Hedge Fund Returns, Management Science, [link](https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2016.2687)

- Albert J Menkveld, [High frequency trading and the new market makers](http://www.sciencedirect.com/science/article/pii/S1386418113000281), Journal of Financial Markets, 2013, [link](https://www.sciencedirect.com/science/article/pii/S1386418113000281)

- Ignashkina, Rinne, and Suominen, 2022, Returns from Providing Liquidity and the Costs of Immediacy, *Journal of Banking and Finance*, [link](https://www.sciencedirect.com/science/article/pii/S0378426622000309)

**III. ANOMALIES, ALTERNATIVE RISK PREMIA AND THE ROLE OF HEDGE FUNDS**

**L-10: 5.10.23. 12.15 – 13.45 (F102). Bubbles, macro effects and price manipulation**

 *-* De Long, Shleifer, Summers, and Waldmann, 1990, Noise Trader Risk in Financial Markets*,* *Journal of* *Political Economy,* [link](https://www.journals.uchicago.edu/doi/abs/10.1086/261703)

 - Suominen (2021), Boundaries of Momentum, working paper SSRN, link

 - Itzhak, Franzoni, Landier, and Moussawi, Do Hedge Funds Manipulate Stock Prices? *Journal of Finance,* 2013, [link](https://www.jstor.org/stable/42002571)

**EXERCISE-3: 5.10.23. 14.15 - 15.45 (V001)**

 **L-11: 9.10.23. 14.15 – 15.45 (U006). Empirical asset pricing anomalies and hedge funds**

- Fung, W., and DS. Hsieh, "Empirical Characteristics of Dynamic Trading Strategies:

 The Case of Hedge Funds," [*Review of Financial Studies*](http://www.rfs.oupjournals.org/), 10 (1997), 275-302, [link](https://academic.oup.com/rfs/article/10/2/275/1588402?login=true)

 - Fung, W., and DS. Hsieh, "Hedge Fund Benchmarks: A Risk Based Approach," with

 William Fung, [*Financial Analyst Journal*](http://www.cfapubs.org/loi/faj), 60 (2004), 65-80, [link](https://www.tandfonline.com/doi/abs/10.2469/faj.v60.n5.2657)

 - Jegadeesh and Titman, 2001, Profitability of Momentum Strategies: An Evaluation of

 Alternative Explanations, *Journal of Finance* [link](http://www.jstor.org.libproxy.aalto.fi/stable/2328882)

 - Asness, C., T. Moskowitch, L. Pedersen, Value and Momentum Everywhere, *The* *Journal of*

 *Finance*, v. LXVIII, NO. 3 • JUNE 2013, [link](https://www.jstor.org/stable/42002613?searchText=asness+moskowitz&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dasness%2Bmoskowitz&ab_segments=0%2Fbasic_search_gsv2%2Fcontrol&refreqid=fastly-default%3A8c5749797ead01602324f20f66cc3c15)

 - Kokkonen and Suominen, 2015, Hedge Funds and Market Efficiency, *Management Science*

 *2015*, [link](https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2014.2037)

 *-* Chordia, Subrahmanyam and Tong, 2014, Have capital market anomalies attenuated in the recent era of high liquidity and trading activity? *Journal of Accounting and Economics*, [link](https://www.sciencedirect.com/science/article/pii/S0165410114000275)

**-** Pontiff and McLean, 2015, Does Academic Research Destroy Stock Return Predictability?, *Journal of Finance*, [link](https://www.jstor.org/stable/43869094?searchText=Pontiff+and+McLean%2C+2015%2C+Does+Academic+Research+Destroy+Stock+Return+Predictability%2C+Journal+of+Finance&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3DPontiff%2Band%2BMcLean%252C%2B2015%252C%2BDoes%2BAcademic%2BResearch%2BDestroy%2BStock%2BReturn%2BPredictability%253F%252C%2B%2BJournal%2Bof%2BFinance&ab_segments=0%2Fbasic_search_gsv2%2Fcontrol&refreqid=fastly-default%3Ab34afc1d97e9027db5de25ce97a27b37)

**L-12: 12.10.23. 12.15 – 13.45 (T004). Investment strategies in fixed income and FX. Wrap-up**

 **-** Brunnermeier, Nagel and Pedersen, 2008, Carry Trades and Currency Crashes,[*link*](https://www.journals.uchicago.edu/doi/full/10.1086/593088)

 - Jylhä and Suominen 2011, Speculative Capital and Currency Carry Trades, *Journal of*

 *Financial Economics*,[*link*](https://www.sciencedirect.com/science/article/pii/S0304405X10001765)

* Menkhoff, Sarno, Schmeling and Schrimpf, 2012, Carry Trades and Global Foreign Exchange

 Volatility, *Journal of Finance,* [*link*](https://www.jstor.org/stable/41419708?searchText=Menkhoff%2C+Sarno%2C+Schmeling+and+Schrimpf%2C+2012%2C+Carry+Trades+and+Global+Foreign+Exchange+Volatility&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3D-%2509Menkhoff%252C%2BSarno%252C%2BSchmeling%2Band%2BSchrimpf%252C%2B2012%252C%2BCarry%2BTrades%2Band%2BGlobal%2BForeign%2BExchange%2B%2B%2B%2B%2BVolatility&ab_segments=0%2Fbasic_search_gsv2%2Fcontrol&refreqid=fastly-default%3A9af3e9e8d4bafc93020eb2bd9abbb3ee)

* Du, Tepper, and Verdelhan, 2018, [Deviations from Covered Interest Rate Parity](https://www.nber.org/papers/w23170)

 *Journal of Finance*, [link](https://www.jstor.org/stable/26654688?searchText=Du%2C+Tepper%2C+and+Verdelhan%2C+2018%2C+Deviations+from+Covered+Interest+Rate+Parity+Journal+of+Finance&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3D-%2509Du%252C%2BTepper%252C%2Band%2BVerdelhan%252C%2B2018%252C%2BDeviations%2Bfrom%2BCovered%2BInterest%2BRate%2BParity%2B%2B%2B%2B%2BJournal%2Bof%2BFinance&ab_segments=0%2Fbasic_search_gsv2%2Fcontrol&refreqid=fastly-default%3A4312a38efbaa05c7aea5f85827c27c14)

* Lustig, Roussanov and Verdelhan, 2011, Common Risk Factors in Currency Markets,

 Review of Financial Studies,[link](https://academic.oup.com/rfs/article/24/11/3731/1589752?login=true)

* Bhardwaj, Gorton and Rouwenhorst, 2015. Facts and Fantasies about Commodity Futures Ten Years Later. *NBER Working Paper* 21243, [link](https://ideas.repec.org/p/nbr/nberwo/21243.html)

**General references:**

- Hull, Options, Futures and Other Derivatives, 9th Edition, 2014. Other editios are fine as well.

- Merton, Continuous-Time Finance, Blackwell 1990

- Ilmanen, Expected Returns, Wiley, 2011

- Pedersen, Efficiently Inefficient: How Smart Money Invests and Market Prices are Determined, 2015

**Additional References:**

- Lecture notes

- Articles listed during the course

Lectures:

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| --- | --- | --- | --- |
| **Pvm** | **Aikaväli** | **Tila** | **Opettaja** |
| Ma | [04.09.23 (vko 36)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404641&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R028F101 F101 Ryhmäopetus | Suominen Matti |
| To | [07.09.23 (vko 36)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404642&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 12:15 - 13:45 | R028F101 F101 Ryhmäopetus | Suominen Matti |
| Ma | [11.09.23 (vko 37)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404643&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R028F102 F102 Ryhmäopetus | Suominen Matti |
| To | [14.09.23 (vko 37)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404644&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 12:15 - 13:45 | R038T004 T004 | Suominen Matti |
| Ma | [18.09.23 (vko 38)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404645&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R038U006 U006 | Suominen Matti |
| To | [21.09.23 (vko 38)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404646&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 12:15 - 13:45 | R028F101 F101 Ryhmäopetus | Suominen Matti |
| Ma | [25.09.23 (vko 39)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404647&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R038U006 U006 | Suominen Matti |
| To | [28.09.23 (vko 39)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404649&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 12:15 - 13:45 | R038T004 T004 | Suominen Matti |
| Ti | [03.10.23 (vko 40)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404650&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 08:15 - 09:45 | R038V002 SAASTAMOISEN SÄÄTIÖ | Suominen Matti |
| To | [05.10.23 (vko 40)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404648&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 12:15 - 13:45 | R028F102 F102 Ryhmäopetus | Suominen Matti |
| Ma | [09.10.23 (vko 41)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404651&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R038U006 U006 | Suominen Matti |
| To | [12.10.23 (vko 41)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404652&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 12:15 - 13:45 | R038T004 T004 | Suominen Matti |

Exercises:

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| --- | --- | --- | --- |
| **Pvm** | **Aikaväli** | **Tila** | **Opettaja** |
| To | [14.09.23 (vko 37)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404654&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R038V001 JENNY JA ANTTI WIHURIN RAHASTO | Rintamäki Paul  |
| To | [21.09.23 (vko 38)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404655&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R038V002 SAASTAMOISEN SÄÄTIÖ | Rintamäki Paul  |
| To | [05.10.23 (vko 40)](https://booking.aalto.fi/kokvar/kal_selaus2.php?varaus=5404657&auto_edit=1&auto_suurr=1&paluu=repost&ss_ttkal=) | 14:15 - 15:45 | R038V001 JENNY JA ANTTI WIHURIN RAHASTO | Rintamäki Paul  |