

Master Thesis Topics FSS 2026

Chair of Finance – Prof. Dr. Erik Theissen



Chair of Finance

- **Address:**
 - L 9, 1-2
 - Secretary: third floor (“3. OG”)
 - Assistants: second and fourth floor
- **Office hours:**
 - By appointment
 - General questions: please visit our homepage first
 - Questions about specific topics: please feel free to contact the respective supervisor
- **Research at the Chair of Finance**
 - a) Market Microstructure
 - b) Empirical Asset Pricing
 - c) Blockchain & Cryptocurrency

Topic Allocation

- **Prerequisite:** You must have successfully completed one seminar of the area "Banking, Finance, and Insurance" (Prof. Maug, Prof. Niessen-Ruenzi, Prof. Ruenzi, Prof. Spalt, Prof. Theissen).
- The assignment of topics is carried out jointly by the finance area.
- Assignment to the topics will be based on your priority list and the grade in the respective seminar.

Time Schedule

- **Application period:** Wednesday, 04.03.2026 – Friday, 13.03.2026
- **Topics Allocation Announcement:** Wednesday, 18.03.2026
- **Registration Period:** Wednesday, 18.03.2026 – Wednesday, 25.03.2026
- **Starting Date:** Wednesday, 18.03.2026
- **Colloquium:** Friday, 29.05.2026 (in-person)
- **Submission Deadline:** Wednesday, 05.08.2026

Guide to Scientific Writing

- **An information sheet on writing a seminar paper or a master thesis is provided on our website.**

- **Most important rules:**
 - Your thesis should be 45 pages (+/- 10%).
 - 50 pages is the absolute maximum.
 - Tables and figures have to be included in the text (and count towards the page restriction).
 - Only supplementary material that is not needed to read and understand the thesis may be collected in an appendix.
 - Please only include literature that is either in English or German.

Important Remarks

- **Plagiarism policy:**
 - Your master thesis will be analyzed by plagiarism detection software (Turnitin).
 - Our chair has a **zero-tolerance policy** regarding plagiarism.
 - Students who submit plagiarized work will be graded with 5.0.

- **Language quality:**
 - Grading of your master thesis takes also into account the language quality.
 - Linguistic shortcomings negatively impact your final grade.
 - The master thesis can be either written in English or German.

- **Some topics look more difficult than others. Why should I choose a rather difficult topic?**

We take the difficulty of the topic into account when grading your thesis.

- **Can I do an internship during the writing process?**

We generally advise against doing an internship during the writing process.

- **My computer crashed and I lost all my progress on the thesis. Can I get an extension of the deadline?**

No, you are responsible to make enough backups of your work.

- **Can I submit earlier?**

Yes.

Master Thesis Topics

- **If you have any questions regarding one of the topics before applying for topics, please feel free to contact the respective supervisor!**
- **You can find contact information for each supervisor on the website of the Chair of Finance**

<https://www.bwl.uni-mannheim.de/en/theissen/team/>

T1. Empirical Asset Pricing with the Gerber Statistic

Erik Theissen

Topic Description

- The Gerber statistic is an alternative measure of co-variation. It defines a stock-specific return range and then sorts returns into those that are above, within, and below the range. Co-movement between two stocks is measured by the extent to which their returns are outside of their respective ranges, either on the same side (positive co-movement) or on different sides (negative co-movement).
- The task of the Master thesis is to develop and implement an empirical asset pricing test based on the Gerber statistic. Specifically, you should perform cross-sectional asset pricing tests on U.S. data and compare the results to those obtained from a traditional CAPM test.
- Further, at least one model extension (such as extension to a multi-factor model, differentiation between upside and downside beta) should be implemented

Requirements:

The candidate should feel comfortable in the use of appropriate software (such as STATA, R or Python) and econometric methods, and should be able to handle large data sets.

T1. Empirical Asset Pricing with the Gerber Statistic

Erik Theissen



Starting References

- Gerber, S., H. Markowitz, P. Ernst, Y. Miao, B. Javid and P. Sargen (2021): The Gerber Statistic: A Robust Co-Movement Measure for Portfolio Optimization. Working Paper.

T2. Does Extending Retirement Savings Horizons Change How People Invest? Evidence from U.S. Pension Reform

Hongting Jiang



Topic Description

- How people allocate their retirement savings has real consequences for their long-term financial wellbeing. Yet we know surprisingly little about whether investors actually adjust their portfolios when their investment horizon changes. This thesis exploits a recent natural experiment: for decades, U.S. tax law forced holders of 401(k) plans and IRAs to start withdrawing their savings at age 70.5. In 2019 and 2022, Congress pushed this age back to 72 and then 73 (the SECURE Act and SECURE 2.0), giving retirees several extra years to keep their money invested and growing tax-free.
- To trace whether this longer horizon changed investment behaviour, the thesis focuses on target-date funds (TDFs), the default investment in most U.S. retirement plans managing over \$3 trillion total assets. Each fund is labeled by the year an investor expects to retire and begin drawing on their savings (e.g., "Target 2030" for someone retiring around 2030) and automatically shifts from stocks toward bonds as that date approaches. Because different funds serve investors at different life stages, they provide a natural setting for observing who -- if anyone -- adjusted their investment choices in response to the reforms.
- Specifically, the student will use a difference-in-differences approach, comparing flows into funds aimed at near-retirees (e.g., 2020–2030 vintages) against those aimed at younger savers (e.g., 2050–2060 vintages) around each reform date. As an extension, the student will examine whether funds that maintain a more aggressive investment strategy near the retirement date, known as the "glide path", show a stronger flow response to the reforms.
- **Requirements:**
- The empirical work requires the use of the CRSP Mutual Fund Database (via WRDS). The databases are readily accessible for affiliates of the University of Mannheim. The candidate should feel comfortable in the use of a statistical software program (such as R or Stata) and econometric methods.



T2. Does Extending Retirement Savings Horizons Change How People Invest? Evidence from U.S. Pension Reform

Hongting Jiang



Starting References

- Brown, J. R., Poterba, J., and Richardson, D. P. "Do Required Minimum Distribution Rules Matter? The Effect of the 2009 Holiday on Retirement Plan Distributions." *Journal of Public Economics* 138 (2016): 73–97.
- Horneff, V., Maurer, R., and Mitchell, O. S. "Do Required Minimum Distribution 401(k) Rules Matter, and For Whom? Insights from a Lifecycle Model." *Journal of Banking & Finance* 154 (2023): 106945.
- Balduzzi, P., and Reuter, J. "Heterogeneity in Target Date Funds: Strategic Risk-Taking or Risk Matching?" *The Review of Financial Studies* 32, no. 1 (2019): 300–337.
- Mitchell, O. S., and Utkus, S. P. "Target-Date Funds and Portfolio Choice in 401(k) Plans." *Journal of Pension Economics and Finance* 21, no. 4 (2022): 519–536.
- Parker, J. A., Schoar, A., and Sun, Y. "Retail Financial Innovation and Stock Market Dynamics: The Case of Target Date Funds." *The Journal of Finance* 78, no. 4 (2023): 2673–2723.
- Mortenson, J. A., Schramm, H. R., and Whitten, A. "The Effects of Required Minimum Distribution Rules on Withdrawals from Traditional IRAs." *National Tax Journal* 72, no. 3 (2019): 507–542.

T3. Can Large Language Models Reduce Behavioral Biases?

Thomas Johann

Topic Description

- Behavioral Finance has identified various biases that affect human investment behavior.
- In recent times, humans oftentimes use LLMs to check and consult their investment decisions.
- It is the purpose of this thesis to analyze whether the interaction with an LLM increases or decreases some of these well-known biases.
- To this end, the thesis shall:
 - ... provide a thorough literature review, structuring and evaluation of the existing papers on the use of LLMs in behavioral finance.
 - ... develop and conduct an experiment to analyze the effect of LLMs on a specific behavioral bias.
- Since this is a relatively novel research question, this thesis is especially suited for those wanting to conduct original research.
- Some prior experience in working empirically (R, or Python) would be highly advisable.

T3. Can Large Language Models Reduce Behavioral Biases?

Thomas Johann

Starting References

- Bini, L., Cong, L. W., Huang, J., & Jin, X. (2026): Behavioral Economics of AI: LLM Biases and Corrections, Working Paper.
- Beck, N., et al. (2025): Bias in the Loop: How Humans Evaluate AI-Generated Suggestions, Working Paper
- Forcellini, M., & Gracikova, D. (2025): From Cognitive Bias to Algorithmic Influence, Journal of Behavioral Economics and Policy.

T4. Are ETFs more effective than mutual funds in fire sales?

Chen Lin

Topic Description

- Exchange-traded funds (ETFs) are designed differently from traditional mutual funds (MFs) to attain favorable features such as lower expenses and higher transparency. Since both ETFs and MFs transform liquidity—holding less liquid assets while selling liquid certificates—whether ETFs are more resilient than MFs during systemic shocks is a question worth investigation.
- Shim and Todorov (2021) document several stylized facts about corporate bond ETFs during and propose the hypothesis *that ETFs are more effective at managing illiquid assets than mutual funds*. Koont et al. (2025) provide more granular evidence on how ETFs optimize the trade-off between portfolio tracking errors and transaction costs. Similar evidence can be found in Brogaard et al. (2025). Despite the relevance of these findings to the hypothesis, no studies directly benchmark ETFs against mutual funds.
- This thesis aims to compare ETFs and MFs on their effectiveness in responding to fire sales. The research will ideally proceed in three stages.
 - Stage 1: Fire Sale Identification. Identify instances of fire sales using either (a) observed large fund outflows (e.g., Coval and Stafford, 2007), or (b) market-wide stress events such as the COVID-19 shock that generated substantial redemption pressures (e.g., Pastor and Vorsatz, 2020; Ma et al., 2022).
 - Stage 2: Fund Sampling. Identify ETFs that are comparable to MFs based on pre-fire-sale characteristics. The sample should ensure ETFs and MFs are as similar as possible across relevant dimensions. Methods for fund categorization can be found in the provided starting references (e.g., Wahal and Wang (2011), Hoberg et al. (2018)).
 - Stage 3: Difference-in-differences Analysis. Compare how ETFs adjust their portfolio positions during fire sales relative to comparable MFs.

Requirements

The empirical work requires the use of large databases (i.e. <CRSP>). The databases are readily accessible for affiliates of the University of Mannheim. The candidate should feel comfortable in the use of a statistical software program (such as STATA) and econometric methods. An elementary level of text analysis will be helpful.

T4. Are ETFs more effective than mutual funds in fire sales?

Chen Lin

Starting References

- Shim, J., K. Todorov, ETFs, illiquid assets, and fire sales. BIS Working Papers No 975, November 2021, <https://www.bis.org/publ/work975.htm>
- Koont, N., Y. Ma, L. Pastor, Y. Zeng, Steering a Ship in Illiquid Waters: Active Management of Passive Funds, *The Review of Financial Studies*, Volume 38, Issue 10, October 2025, Pages 2887–2935, <https://doi.org/10.1093/rfs/hhaf034>
- Brogaard, J., D. Heath, D. Huang, ETF Sampling and Index Arbitrage. *Journal of Financial and Quantitative Analysis*. Published online 2025:1-33. doi:10.1017/S0022109025102378
- Ma, Y., K. Xiao, Y. Zeng, Mutual Fund Liquidity Transformation and Reverse Flight to Liquidity, *The Review of Financial Studies*, Volume 35, Issue 10, October 2022, Pages 4674–4711, <https://doi.org/10.1093/rfs/hhac007>
- Pastor, L., M. B. Vorsatz, Mutual Fund Performance and Flows during the COVID-19 Crisis, *The Review of Asset Pricing Studies*, Volume 10, Issue 4, December 2020, Pages 791–833, <https://doi.org/10.1093/rapstu/raaa015>
- Coval, J., E. Stafford, Asset fire sales (and purchases) in equity markets, *Journal of Financial Economics*, Volume 86, Issue 2, 2007, Pages 479-512, ISSN 0304-405X, <https://doi.org/10.1016/j.jfineco.2006.09.007>.
- Hoberg G., N. Kumar, N. Prabhala, Mutual Fund Competition, Managerial Skill, and Alpha Persistence, *The Review of Financial Studies*, Volume 31, Issue 5, May 2018, Pages 1896–1929, <https://doi.org/10.1093/rfs/hhx127>
- Wahal S., A. Wang, Competition among mutual funds, *Journal of Financial Economics*, Volume 99, Issue 1, 2011, Pages 40-59, <https://doi.org/10.1016/j.jfineco.2010.08.012>
- Zhu, Q., The Missing New Funds, *Management Science* 2020 66:3, 1193-1204, <https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2019.3454>

T5. Quantum Computing and Financial Markets

Stefan Scharnowski

Topic Description

- Quantum computers operate on fundamentally different principles than classical computers. By exploiting quantum phenomena such as superposition and entanglement, they enable certain algorithms to achieve speedups of several orders of magnitude. Although large-scale, fault-tolerant quantum computers are not yet commercially available, both industry and academia have made substantial progress in their development.
- Quantum computing (QC) presents significant opportunities as well as risks for financial markets. On the one hand, quantum algorithms could dramatically accelerate the solution of complex problems in areas such as portfolio optimization, financial simulation, and risk management. On the other hand, sufficiently powerful quantum computers could compromise widely used asymmetric encryption schemes, posing serious security risks. In addition, firms that are slow to adapt to quantum technologies may face competitive disadvantages or be crowded out altogether.
- The aim of this project is to analyze the impact of QC on financial markets. One possible approach is to examine firms involved in QC and study stock price reactions to major technological breakthroughs or announcements regarding recent developments.

Requirements

The candidate should feel comfortable in the use of a statistical software program (such as Python or Stata) and econometric methods.

T5. Quantum Computing and Financial Markets

Stefan Scharnowski

Starting References

- Bertucci, L., Jahanshahloo, H., & Scharnowski, S. (2025). Do Cryptocurrency Investors care about Quantum Risks?. <https://dx.doi.org/10.2139/ssrn.5324094>
- Bunescu, L., & Vârtei, A. M. (2024). Modern finance through quantum computing—A systematic literature review. PloS one, 19(7), e0304317.
- Florackis, C., Louca, C., Michaely, R., & Weber, M. (2023). Cybersecurity risk. The Review of Financial Studies, 36(1), 351-407. <https://doi.org/10.1093/rfs/hhac024>
- Herman, D., Googin, C., Liu, X., Sun, Y., Galda, A., Safro, I., ... & Alexeev, Y. (2023). Quantum computing for finance. Nature Reviews Physics, 5(8), 450-465.
- Naik, A. S., Yeniaras, E., Hellstern, G., Prasad, G., & Vishwakarma, S. K. L. P. (2025). From portfolio optimization to quantum blockchain and security: A systematic review of quantum computing in finance. Financial Innovation, 11(1), 88.

T6. Factor-Based Enhanced Index Tracking with Genetic Algorithms

Ziheng Sun



Topic Description

- Index tracking is a fundamental passive investment strategy that aims to replicate the performance of a market benchmark while minimizing tracking errors and transaction costs. However, full replication of broad indices is often impractical due to large constituent numbers, liquidity constraints, and trading costs. A key challenge is the NP-hard nature of the cardinality-constrained portfolio optimization problem, where the number of assets must be limited.
- Classical factor models—particularly the Fama–French three-factor (1993) and five-factor (2015) models—provide a systematic framework for constructing expected return forecasts based on well-documented cross-sectional anomalies including SMB, HML, RMW, and CMA. These factor exposures can serve as "alpha signals" to tilt the tracking portfolio toward stocks with higher expected returns.
- Genetic algorithms (GAs) have emerged as effective metaheuristics for solving cardinality-constrained portfolio optimization problems, offering computational tractability where exact methods fail. Oh, Kim, and Min (2005) demonstrate GA effectiveness for index fund management, while recent work by Benidis, Feng, and Palomar (2018) establishes rigorous frameworks for sparse index tracking.
- In this thesis, the student will develop a three-stage index tracking framework: (1) construct expected return forecasts using Fama–French factor loadings estimated via rolling regressions, (2) employ a genetic algorithm to solve the cardinality-constrained optimization that minimizes tracking error while, e.g., maximizing expected excess return, and (3) compare the out-of-sample tracking errors of the genetic algorithm with those of benchmark models. The benchmark index can be the STOXX Europe 600, S&P 500, or MSCI ACWI. The student is encouraged to explore different fitness functions (e.g., Sharpe ratio, information ratio) and robustness across market regimes. The student will be provided with slides on Genetic Algorithms.

Requirements

- Proficiency in Python or R. Familiarity with cross-sectional asset pricing models and Fama–MacBeth regressions. Understanding of quadratic programming and metaheuristic optimization. Access to financial databases (e.g., LSEG Workspace, WRDS, or Yahoo Finance). Basic knowledge of performance evaluation metrics (tracking error, information ratio, Sharpe ratio).

T6. Factor-Based Enhanced Index Tracking with Genetic Algorithms

Ziheng Sun

Starting References

- Clarke, R., de Silva, H., & Thorley, S. (2002). Portfolio constraints and the fundamental law of active management. *Financial Analysts Journal*, 58(5), 48–66.
- Canakgoz, N. A., & Beasley, J. E. (2009). Mixed-integer programming approaches for index tracking and enhanced indexation. *European Journal of Operational Research*, 196(1), 384–399.
- DeMiguel, V., Garlappi, L., & Uppal, R. (2009). Optimal versus naive diversification: How inefficient is the 1/N portfolio strategy? *Review of Financial Studies*, 22(5), 1915–1953.
- Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, 116(1), 1–22.
- Frino, A., & Gallagher, D. R. (2001). Tracking S&P 500 index funds. *Journal of Portfolio Management*, 28(1), 44–55.
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1), 77–91.
- Oh, K. J., Kim, T. Y., & Min, S. (2005). Using genetic algorithm to support portfolio optimization for index fund management. *Expert Systems with Applications*, 28(2), 371–379.
- Roll, R. (1992). A mean/variance analysis of tracking error. *Journal of Portfolio Management*, 18(4), 13–22.

Publicly Accessible Database:

- Kenneth R. French - Data Library: https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html
- Yahoo Finance API / yfinance (Python): <https://pypi.org/project/yfinance/>

T7. Differences of Opinion, Overvaluation, and Earnings Announcements

Daniel Weiß

Topic Description

- Standard asset pricing theory assumes rational investors who have homogeneous expectations, i.e. investors have common beliefs and agree on the properties of the data-generating process. However, empirical findings indicate that investors “agree to disagree” as they have differing views on the correct valuation of a firm for a number of reasons.
- Miller (1977) asserts that investor disagreement leads to stock overvaluation if short-selling is constrained. Berkman et al. (2009) test this theoretical prediction using earnings announcements as disagreement-reducing events. They use five different proxies for investor disagreement and find downward corrections of stock prices after earnings announcements for stocks with high disagreement and high short-sale constraints.
- The literature controversially argues about the right proxy for disagreement as numerous distinct proxies have been presented so far (Goulding et al., 2025).
- The task of this thesis is twofold. First, the student should conduct a literature review on investor disagreement in general, the Miller (1977) argument, and research on how to empirically capture disagreement. Second, the student should rerun the analysis of Berkman et al. (2009) using an updated sample period and a different set of disagreement proxies.

Requirements

The empirical work requires the use of large databases (i.e., I/B/E/S, CRSP, Compustat, Thomson Reuters). The databases are readily accessible for affiliates of the University of Mannheim. The candidate should feel comfortable in the use of a statistical software program (i.e., STATA, R) and econometric methods.

T7. Differences of Opinion, Overvaluation, and Earnings Announcements

Daniel Weiß

Starting References

- Berkman, H., Dimitrov, V., Jain, P. C., Koch, P. D., & Tice, S. (2009). Sell on the news: Differences of opinion, short-sales constraints, and returns around earnings announcements. *Journal of Financial Economics*, 92(3), 376-399.
- Boehme, R. D., Danielsen, B. R., & Sorescu, S. M. (2006). Short-sale constraints, differences of opinion, and overvaluation. *Journal of Financial and Quantitative Analysis*, 41(2), 455-487.
- Garfinkel, J. A. (2009). Measuring investors' opinion divergence. *Journal of Accounting Research*, 47(5), 1317-1348.
- Goulding, C. L., Harvey, C. R., & Kurtović, H. (2024). Disagreement of disagreement. Available at <https://ssrn.com/abstract=4647471>.
- Miller, E. M. (1977). Risk, uncertainty, and divergence of opinion. *The Journal of Finance*, 32(4), 1151-1168.
- Nagel, S. (2005). Short sales, institutional investors and the cross-section of stock returns. *Journal of Financial Economics*, 78(2), 277-309.

T8. Long-run IPO Performance and Firm Characteristics: Evidence from Germany

Mengnan Wu



Topic Description

- A substantial body of empirical research documents negative long-run abnormal returns following major corporate events such as initial public offerings (IPOs), seasoned equity offerings (SEOs), mergers and acquisitions (M&A), and dividend initiations. However, Bessembinder and Zhang argue that much of the documented underperformance may be driven by imperfect matching procedures in benchmark construction. Specifically, event firms may differ systematically from their matched control firms not only in size and book-to-market ratios, but also in characteristics such as idiosyncratic volatility, liquidity, momentum, beta, and investment intensity—factors that independently explain cross-sectional return variation.
- The thesis should (i) survey the literature on long-term IPO underperformance; (ii) assess whether long-term return estimates from the buy-and-hold abnormal return method and the calendar-time portfolio approach are consistent; (iii) examine the explanatory power of nonlinearities (squared firm characteristics) for long-term returns; and (iv) apply the characteristic-based benchmark proposed by Bessembinder and Zhang (2019) to evaluate post-IPO stock performance.

Requirements

The empirical work requires the use of large databases (i.e. LSEG Workspace). The candidate should feel comfortable in the use of Stata and econometric methods.

T8. Long-run IPO Performance and Firm Characteristics: Evidence from Germany

Mengnan Wu

Starting References

- Bessembinder, H., & Zhang, F. (2013). Firm characteristics and long-run stock returns after corporate events. *Journal of Financial Economics*, 109(1), 83-102.
- Gandolfi, G., Regalli, M., Soana, M. G., & Arcuri, M. C. (2018). Underpricing and long-term performance of IPOs: Evidence from European intermediary-oriented markets. *Economics, Management & Financial Markets*, 13(3).
- Bessembinder, H., Cooper, M. J., & Zhang, F. (2019). Characteristic-based benchmark returns and corporate events. *The Review of Financial Studies*, 32(1), 75-125.
- Loughran, T. (2025). Do Factors Matter?. *Critical Finance Review*, 14(3), 329-355.