

## Seminar Thesis Spring 2025

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### **Topic S1: The Return of Elite Education for Asset Managers: Evidence from ChatGPT**

Classification: Empirical Topic

**Advisor: Sabrina Yufang Sun**

Over the past decades, financial companies have increasingly prioritized recruiting talent from elite universities. In the United States, for example, alumni of prestigious institutions are significantly more likely to ascend to top executive roles within the financial sector than in non-finance sectors (Bühlmann et al., 2022). While this trend reflects the perceived value of elite education for a financial career, it is not clear whether such perception is supported by empirical evidence. This project seeks to fill this gap by empirically investigating the return of elite education for financial firms, focusing on the asset management industry. Specifically, the student will investigate whether a fund manager's elite education status translates into realized value, i.e., success for the asset management firm.

To extract elite education, the student will analyze fund manager biographies using ChatGPT, a state-of-the-art tool natural language processing. Fund manager biographies from publicly available sources will be used to identify managers' educational background, as well as other attributes like gender and career trajectories.

Success of the asset management firm will be measured along two dimensions: fund performance and fund flow. The fund performance analysis evaluates whether managers with elite education achieve superior risk-adjusted returns. Meanwhile, the fund flow dimension examines how investors respond to the perceived prestige of a manager's educational background, analyzing its impact on the fund net inflow.

#### **Main Empirical Tasks:**

- 1) Use ChatGPT to extract the educational background of managers
- 2) Empirically investigate whether managers with elite educational background outperform their non-elite counterparts.

#### **Data and Requirements:**

This project provides an opportunity to learn and apply skills in Python, in particular natural language processing using large language models. It offers hands-on experience in cutting-edge tools like OpenAI API for analyzing textual data in the context of financial research.

Python beginners are welcome. Prior experience with Python is **not** required, but a basic understanding of Python or another programming language is a plus, for example through the course FIN 687 Python in Finance. The advisor will provide step-by-step tutorials and example code in all steps of the thesis. In particular, the student will learn how to collect data from the web, how to set up and use the OpenAI API, and how to write effective prompts to communicate with large language models like ChatGPT. Data on asset management firms and fund managers are available in Morningstar and CRSP.

#### **Introductory Literature:**

Bühlmann, F., Schoenberger, F., Ajdacic, L., & Foureault, F. (2022). Elite recruitment in US finance: How university prestige is used to secure top executive positions. *The British Journal of Sociology*, 73(4), 667-684.

## **Topic S2: The Social Impact of Private Equity Buyouts: Evidence from ChatGPT**

Classification: Empirical Topic

**Advisor: Sabrina Yufang Sun**

In recent years, institutional investors, particularly private equity funds, have shown growing interest in generating positive social impact alongside financial returns. This trend is sometimes referred to as "impact investing". One sector that is increasingly targeted by impact-seeking investors is the care industry – healthcare, childcare, and senior care. Over the past ten years, there has been a significant rise in private equity investment in the care industry due to its long-term growth potential and the critical need for innovative solutions to address complex social challenges.

An important open question is whether the institutional money poured into the care industry leads to positive social impact. While proponents cite the efficiency gains and innovation (Gao et al, 2021), critics argue that the focus on financial returns in these sectors can lead to neglecting the needs of vulnerable populations and compromising the quality of care provided, potentially undermining the social impact (Gupta et al., 2024).

The current project will empirically examine the social impact of private equity (PE) firms' impact investments. The focus is on PE buyouts of care facilities. Specifically, how do these PE buyouts influence the care workers employed by the facilities? How do the buyouts influence the customers and their families? To answer these questions, students will use ChatGPT, a state-of-the-art tool for textual analysis to conduct textual analysis on firm reviews. Specifically, reviews of the firms being bought by private equity will be compared to the reviews of their counterparts that managed to stay independent.

### **Main Empirical Tasks:**

- 1) Use ChatGPT to conduct textual analysis on firm reviews.
- 2) Evaluate the investment strategy of private equity firms with respect to their social impacts on customers and workers.

### **Data and Requirements:**

This project provides an opportunity to learn and apply skills in Python, in particular natural language processing using large language models. It offers hands-on experience in cutting-edge tools like OpenAI API (including ChatGPT API) for analyzing textual data in the context of financial research.

Python beginners are welcome. Prior experience with Python is **not** required, but a basic understanding of Python is a plus, for example through the course FIN 687 Python in Finance. The advisor will provide step-by-step tutorials and example code in all steps of the thesis. In particular, the student will learn how to set up and use the OpenAI API and how to write effective prompts to communicate with large language models like ChatGPT. Data on private equity deals and firm reviews will be provided by the advisor.

### **Introductory Literature:**

Gao, J., Sevilir, M., & Kim, Y. S. (2021). *Private equity in the hospital industry*. Working paper.

Gupta, A., Howell, S. T., Yannelis, C., & Gupta, A. (2024). Owner incentives and performance in healthcare: Private equity investment in nursing homes. *The Review of Financial Studies*, 37(4), 1029-1077.

### **Topic S3: Portfolio Pumping and Equity Lending of Mutual Funds**

Classification: Empirical Topic

**Advisor: Annabelle Brösti**

Previous literature has found evidence that mutual fund returns are abnormally high at quarter- and year-ends. This has been interpreted as evidence for “portfolio pumping”, that is, mutual funds temporarily inflating their performance to attract investor flows (Carhart et al., 2002). Since such price spikes do not coincide with changes in the stocks' fundamentals, they should revert back in the following quarter or year. Thus, inferring mutual fund performance from disclosed portfolio holdings might mislead investors.

The literature on portfolio pumping has discussed two strategies how funds can inflate the stock prices of their holdings at quarter- or year-ends: they buy the stocks they hold more or sell them less (Hu et al., 2014). However, stock prices might also be higher if they are sold short less (Ringgenberg, 2014). Mutual funds serve as major lenders of the securities that short-sellers borrow to cover their shorts and can thus indirectly influence short-selling activity (Dong & Zhu, 2022). This alternative channel to inflate performance has not yet been investigated.

The goal of this seminar thesis is threefold. First, the student should summarize the literature on portfolio pumping and securities lending by mutual funds. Second, the student should analyse whether mutual fund returns exhibit a pattern consistent with portfolio pumping. Third, the student should examine whether this return pattern is stronger for funds that lend out part of their portfolio.

#### **Data:**

Data on mutual fund returns can be obtained from CRSP via WRDS. Data on securities lending activities will be provided by the advisor.

#### **Introductory Literature:**

Carhart, M. M., Kaniel, R., Musto, D. K., & Reed, A. V. (2002). Leaning for the tape: Evidence of gaming behavior in equity mutual funds. *The Journal of Finance*, 57(2), 661-693.

Dong, X., & Zhu, Q. (2022). Equity lender base and limits to arbitrage: Position-level evidence from mutual funds. *Working Paper*.

Honkanen, P. (2020). Securities lending and trading by active and passive funds. *Working Paper*.

Hu, G., McLean, R. D., Pontiff, J., & Wang, Q. (2014). The year-end trading activities of institutional investors: Evidence from daily trades. *The Review of Financial Studies*, 27(5), 1593-1614.

Patel, S., & Sarkissian, S. (2021). Portfolio pumping and managerial structure. *The Review of Financial Studies*, 34(1), 194-226.

Ringgenberg, M. C. (2014). Price pressure from short selling. *Working Paper*.

#### **Topic S4: Wealth Inequality and Financial Development**

Classification: Empirical topic

**Advisor: Annabelle Bröstl**

A recent literature in political economy notes that powerful interest groups might drive the development of economic institutions, and growth in general (e.g. Engermann & Sokoloff, 2002; Rajan & Zingales, 2003). Banks, matching up creditors and borrowers, are important financial institutions. In Postbellum America, few banks existed and loans were oftentimes provided by powerful landowners (White, 2017). These landowners might have had an interest in preventing the development of banks to secure their rents in the nascent financial system of the United States.

Rajan & Ramcharan (2011) indeed find that land concentration is negatively associated with banks per capita in 1920 and 1930. Jaremski & Fishback (2018), however, contradict these findings by documenting a positive relationship between land concentration and banks per capita between 1870 and 1900.

The goal of this seminar thesis is threefold: First, the student should critically review the literature on how wealth inequality might affect financial development. A special focus should be put on identification issues related to examining this relationship. Second, the student should replicate the main results of Jaremski & Fishback (2018) and Rajan & Ramcharan (2011). Third, the student should test the robustness of the results by using other proxies for financial development and wealth inequality.

#### **Data:**

Data on land concentration is available in the agricultural census made available by Haines (2014): <https://www.icpsr.umich.edu/web/ICPSR/studies/2896> . Data on banking development (number of banks, bank assets) can be obtained from the data archives of Jaremski & Fishback (2018) and Carlson et al. (2022).

#### **Introductory Literature:**

Carlson, M., Correia, S., & Luck, S. (2022). The effects of banking competition on growth and financial stability: Evidence from the national banking era. *Journal of Political Economy*, 130(2), 462-520.

Engerman, S. L., & Sokoloff, K. L. (2002). Factor endowments, inequality, and paths of development among new world economics. *Working Paper*.

Jaremski, M., & Fishback, P. V. (2018). Did inequality in farm sizes lead to suppression of banking and credit in the late nineteenth century?. *The Journal of Economic History*, 78(1), 155-195.

Rajan, R. G., & Zingales, L. (2003). The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics*, 69(1), 5-50.

Rajan, R. G., & Ramcharan, R. (2011). Land and credit: A study of the political economy of banking in the United States in the early 20th century. *The Journal of Finance*, 66(6), 1895-1931.

White, R. (2017). The republic for which it stands: The United States during reconstruction and the gilded age, 1865-1896. In: Kennedy, D.M. (Ed.): *Oxford History of the United States*. Oxford University Press.

### **Topic S5: Asymmetric Prediction Power of Words: Evidence from Text-based Sentiment Analysis**

Classification: Empirical topic

**Advisor: Yue Wu**

For nearly two decades, textual analysis has been widely used in finance literature and provided new sources of data and information for financial models. Among all practical applications of textual analysis, sentiment analysis is widely used to extract the “mood” of the text (i.e., whether the texts are positive or negative), and a large body of empirical studies have shown that sentiment analysis results have prediction power on stock returns.

A representative paper using textual-analysis-based sentiments to predict outcomes, Loughran and McDonald (2011), finds that the widely used Harvard-IV-4 TagNeg (hereafter “H4N”), a dictionary developed for psychology and sociology, misclassifies words in financial applications. They, therefore, create a new set of dictionaries (hereafter as “LM Dictionaries”) for analyzing financial documents. They test the prediction power of sentiment by Fama-MacBeth Regression (Fama and MacBeth, 1973): starting from using only a financially negative dictionary to predict stock return decreases, then including additional dictionaries (such as positive, uncertainty, litigious dictionaries, etc.), they conclude that firms using fewer negative, uncertain, modal strong and modal weak words realize a more positive return in the filing date event window. Surprisingly, the positive words used in 10-K files cannot predict positive stock return in the event window, hence the “asymmetric prediction power”.

This seminar thesis will help students understand how textual analysis is applied in finance research and how to apply classic asset pricing models such as the Fama-French 3-Factor model (Fama and French, 1993) and the Fama-MacBeth model.

#### **Main Tasks:**

1. Give a comprehensive literature review on textual analysis application in finance literature;
2. Replicate Table II and Table IV in the paper: you may leave out the MD&A part and the regressions on the H4N dictionary but include regression using the other 5 LM dictionaries (negative, uncertainty words, etc.) for Table IV. In your result, does a positive dictionary have significant prediction power?
3. Extend the regression models by including more recent data: does the word prediction power still exist? Is this prediction power still asymmetric? Show your results and provide explanations.

#### **Code:**

Prof. McDonald shares Python codes for textual analysis and downloading 10-K files from the SEC EDGAR on his website at <https://sraf.nd.edu/>. You are allowed to use the code templates directly. Alternatively, I will provide some other Python code templates upon request. Python is recommended for this project (basic Python knowledge is a plus yet not necessarily required), but you can use other programming languages.

#### **Data:**

The databases are readily accessible for affiliates of the University of Mannheim. On the webpage mentioned above, you will also find the LM dictionaries used in Loughran and McDonald (2011), which you can directly use for the Sentiment Analysis. Fama-French 48 industries classification can be found at [https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data\\_Library/det\\_48\\_ind\\_port.html](https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_48_ind_port.html).

**Introductory Literature:**

Fama, E.F. and French, K.R., 1993. Common risk factors in the returns on stocks and bonds. *Journal of financial economics*, 33(1), pp.3-56.

Fama, E.F. and MacBeth, J.D., 1973. Risk, return, and equilibrium: Empirical tests. *Journal of political economy*, 81(3), pp.607-636.

Loughran, T. and McDonald, B., 2011. When is a liability not a liability? Textual analysis, dictionaries, and 10 - Ks. *The Journal of finance*, 66(1), pp.35-65.



### **Topic S6: Building Causality between Socially Responsible Investors and Firms**

Classification: Empirical topic

**Advisor: Yue Wu**

Do institutional investors influence the corporate social responsibility (hereafter as “CSR”) score of the firms they hold, or do firms improve their institutional investors’ portfolio CSR scores? Hwang, Titman, and Wang (2022) provide an answer that the former is the truth. The paper categorizes institutional investors into socially responsible investors (hereafter “SRI”) and not socially responsible investors (hereafter “NSRI”), and shows that an increase in NSRI ownership will immediately decrease firms’ CSR score, but it takes longer time for the increase in SRI ownership to significantly increase firms’ CSR score, indicating that SRI will increase the CSR score of the firms that they hold by increasing the ownership of such holding firms.

Yet this revealed higher SRI ownership of firms then leads to a decrease in stock returns, indicating that such firms tend to deviate from solely maximizing shareholder value and to spend more than the value-maximizing amount on CSR amounts, corresponding to earlier findings in Krüger (2015) that stock prices respond negatively to positive CSR events, but going one step forward to rule out the concern that higher CSR activities are responses to other unfavorable events. The value-destroying outcome from higher CSR scores and higher SRI ownership also partially explains the fun fact found in Fernando et al. (2017) that institutional investors avoid green firms that increase green investments more than legally mandated.

The seminar thesis aims to help students understand how institutional investors interact with firms via CSR investments, how CSR-related databases are matched and combined with traditional financial databases, and how to combine the classic Fama-MacBeth model with CSR investments.

#### **Main Tasks:**

1. Provide a comprehensive literature review on the link between institutional investors and CSR (or ESG) activities and investments;
2. Replicate Table 1, 2 and 3 in the paper.
3. Use another available CSR / ESG database to replace the KLD CSR score and run all regressions again (during the same time span): do you get similar results? If not, explain the disagreements between different CSR / ESG methodologies.
4. Add one discussion section to explain how the authors manage to identify the causality.

#### **Data:**

The databases are available for download from public databases. The hedge fund categorization that the paper uses is not available for now, so you may match the database with other available hedge fund databases such as Refinitiv Lipper TASS (henceforth, this project is not a close replication of the paper).

#### **Introductory Literature:**

Fama, E.F. and MacBeth, J.D., 1973. Risk, return, and equilibrium: Empirical tests. *Journal of political economy*, 81(3), pp.607-636.

Fernando, C.S., Sharfman, M.P. and Uysal, V.B., 2017. Corporate environmental policy and shareholder value: Following the smart money. *Journal of Financial and Quantitative Analysis*, 52(5), pp.2023-2051.

Hwang, C.Y., Titman, S. and Wang, Y., 2022. Investor tastes, corporate behavior, and stock returns: An analysis of corporate social responsibility. *Management Science*, 68(10), pp.7131-7152.



Krüger, P., 2015. Corporate goodness and shareholder wealth. *Journal of financial economics*, 115(2), pp.304-329.

## **Topic S7: The Global Dynamics of Monetary Policy Surprises**

Classification: Empirical topic

**Advisor: Paul Seidel**

Monetary policy surprises have long been recognized as drivers of financial market dynamics. Recent research, such as Neuhierl and Weber (2024), identifies a striking pattern of return drift, termed "monetary momentum," surrounding Federal Open Market Committee (FOMC) announcements. These findings show that U.S. equity returns exhibit upward drift prior to expansionary monetary surprises and downward drift before contractionary surprises, with continued adjustment in the days following the announcements.

While these results are compelling, the broader implications remain underexplored. Specifically, the effects of monetary momentum on equity markets outside the U.S. and its existence in connection with other central banks such as the European Central Bank (ECB), Bank of England (BoE), and Bank of Japan (BoJ) are yet to be systematically analyzed. This thesis aims to fill this gap by extending the study of monetary momentum to international markets and assessing its role across multiple central banks.

The seminar thesis is structured around three key objectives.

First, the student will replicate the findings of Neuhierl and Weber (2024) by focusing on FOMC monetary momentum. This will involve calculating monetary surprises using federal funds futures and analyzing equity return patterns around these announcements.

Second, the study will investigate whether monetary momentum effects extend beyond U.S. equity markets to international markets. By analyzing indices such as the MSCI World, FTSE, and Nikkei, the research will provide insights into the global spillover effects of FOMC surprises.

Third, the thesis will examine the monetary momentum associated with other central banks, including the ECB, BoE, BoJ, and others. By leveraging instruments such as fund futures and OIS rates, the analysis will compare the presence and magnitude of return drift across regions.

### **Data:**

The data for the first and second task is available for download from public databases. For the third part, I will provide data, which can be extended downloading data from central banks websites.

### **Introductory Literature:**

Ehrmann, M., & Fratzscher, M. (2006). Global Financial Transmission of Monetary Policy Shocks. *Oxford Bulletin of Economics and Statistics*, 68(4), 307-341.

Bernanke, B. S., & Kuttner, K. N. (2005). What Explains the Stock Market's Reaction to Federal Reserve Policy? *The Journal of Finance*, 60(3), 1221-1257.

Neuhierl, A., & Weber, M. (2024). Monetary Momentum. *Working Paper*, SSRN.