

## **Thesis Guidelines at the House of Finance-Chair of Sustainable Asset Management**

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This document provides you with non-comprehensive guidelines on how to write your thesis. For more detailed information, I refer to John Cochranes “Writing Tips for Ph. D. Students”, which is available for free on the internet. (For example, you can download it at [http://mayoral.iae-csic.org/timeseries\\_bgse13/phd\\_paper\\_writing.pdf](http://mayoral.iae-csic.org/timeseries_bgse13/phd_paper_writing.pdf)). Furthermore, articles in the top finance journals (The Journal of Finance, The Review of Financial Studies, and the Journal of Financial Economics) can serve to guide you.

### **Disclaimer:**

The official Rules and Regulations (Prüfungsordnung) are binding. In case of any discrepancies between my guidelines and the official Rules and Regulations, the Rules and Regulations override these guidelines.

### **General information:**

- In your thesis, you should demonstrate that you are capable, within a given time limit, to work independently on a specific topic in a comprehensive and deeper way.
- I follow a no excuse policy for plagiarism.
- In general, your thesis should include an empirical analysis, i.e. you use data to test hypotheses. This rule applies in particular to Master theses.  
Thus, you should have basic knowledge (or the ability/willingness to acquire basic knowledge) in econometrics and STATA (or similar statistical software) and should be motivated to undertake empirical work.
- The language of your thesis can be either English or German. As the academic finance literature is written in English, I recommend to write your thesis in English.
- Master thesis colloquia
  - Depending on the number of students writing their master thesis at the House of Finance-Chair of Sustainable Asset Management, there will be two block sessions in which

candidates will present their work. These block sessions are an integral component of the supervision at my chair. They should be considered as a chance to get early feedback on your thesis. Additionally, participants have the opportunity to discuss problems and in particular to receive guidance.

- In the summer (winter) term, the colloquia typically take place in the middle of May (November) and in late June (Mid December or early January). The colloquia have shown to be most useful about six weeks after the start (first colloquium) and about five weeks before the end of the processing time (second colloquium). Thus, it is recommended that you start your thesis in early April (October) in the summer (winter) term.
- The participation in the block sessions is highly recommended for all candidates.
- The colloquia are not graded. The grading is based 100% on the final thesis.

### **General advice:**

- What is the knowledge of your readers?

You should assume that your readers possess basic knowledge in business administration, finance, and statistics, i.e., they are familiar with standard methods and concepts. For example, your readers have the knowledge of standard textbooks like the ones you have used in your courses. You can also use the typical knowledge of your classmates as a benchmark.

- How should you structure your thesis?

The content of your thesis determines its structure, not the other way around!

In particular, do not start by planning a detailed table of contents and then try to fill each (sub)section you have defined. Instead your thesis should have a logical structure. For instance, when you conduct your (empirical) analysis the results will indicate which analyses logically/economically follow next. These analyses will then define the subsequent (sub)sections.

- How many levels of sections and subsections should you use?

In general, two to three layers of (sub)sections (e.g., two layers: section 2, subsection 2.1, subsection 2.2, etc. and three layers: section 2, subsection 2.1, subsection 2.1.1, subsection 2.1.2, subsection 2.2, etc.) are a good choice.

If your thesis has a new (sub)section on every page then you typically have too many (sub)sections. If you have more than five pages without the start of a new (sub)section then it may help to use (sub)sections more frequently.

- One idea per paragraph!  
 Use paragraphs to structure your text. One idea per paragraph is a good rule of thumb. Papers from the top finance journals, especially those published by English native speakers, can serve as an example.
- What narrative perspective should you use?  
 You should write using the first person singular or plural. It is perfectly fine to write “I find that...” or “We show that...”. The first person plural can also be used if you are the only author.  
 You should avoid complicated wording like passive voice, e.g., “In this paper, it is shown that...”
- Use the present tense! It is perfectly fine to write “Jegadeesh and Titman (1993) find that ...” even though their paper was written more than 20 years ago.
- Further tips:
  - Avoid the “naked this”.  
 Do not use “this” without a clear antecedent in the sentence before. “This implied that x is...” → What exactly implies that x is...?
  - “Data” is plural and the verb should be chosen accordingly. “The data include”, but not “The data includes”.
  - Variables do not have a “relationship”, but a “relation”.
  - “In order to” should be shortened to “to”.

**Recommendations for empirical thesis:**

- In your interpretation, be careful to distinguish between correlation and causality. Typically, OLS regressions only show correlations and consequently results should not be interpreted causally.
- Your thesis should have a variable appendix in which the construction of all variables is explained. Example:

Variable name	Description	Source
Market Cap	Firm’s market capitalization calculated as number of shares outstanding (item: shrou) times share price (item: prc) in million USD.	CRSP
Book-to-Market	Firm’s book-to-market ratio defined as firm’s book value of equity (item CEQ) divided by Market Cap. The	CRSP, Compustat

	variable is calculated at the end of year t but used from July year t+1 to June year t+2 to assure data availability.	
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- Each table should be accompanied with a caption that describes how the results are obtained. The caption should provide the following information:
  - One sentence summary of the analysis: “This table shows panel regressions of monthly Y on X and control variables.” or “This table reports equal-weighted returns of quintile portfolios sorted on X”.
  - Variable definitions: the variables of interest should be explained briefly in the caption. For the control variables, you can refer to the variable appendix.
  - Methodology: “Portfolios are updated each month.”
  - If applicable: explain the different specifications shown in the table. Example: “Columns (1) and (3) ((2) and (4)) include month fixed effects (firm fixed effects).“ or “The second to last (last) row shows the raw return (Carhart (1997) four factor alpha) of a long-short strategy that buys quintile 5 and sells short quintile 1.”
  - Short summary of the sample: “All ordinary shares with a stock price of more than 1 USD at the end of the formation period are included. The sample period is from 1963 to 2016.”
  - General econometric setup: type of standard errors and statistical significance. “Standard errors are double-clustered by firm and month. t-statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% level, respectively.”
- Typically, the captions from papers published in top finance journals can serve as an example.
- To check whether the caption contains all relevant information ask yourself whether you would be able to replicate your analysis solely from the description in the caption.
- In your text and tables, use plain variable names like “Analyst Coverage” and not “numest”.

### Structure and formal details:

- Structure:
  - Cover page including at least the following information: title of your thesis, advisor’s name, your name, address, student ID, and program of study.  
Please note that the Rules and Regulations may require additional information.
  - Table of contents
  - List of tables
  - List of figures

- List of symbols
- List of abbreviations
  - Well-established abbreviations like “i.e.”, “e.g.”, “USD”, and “EU” do not need to be defined.
  - In the main text, abbreviations should be introduced in parentheses after the term is first used. For instance, “The U.S. Securities and Exchange Commission (SEC) aims to protect investors.”
- Text
- Bibliography
- Appendix
- Eidesstattliche Erklärung (declaration of academic honesty)

The wording of this declaration can be found in the Rules and Regulations and/or on the webpage of the Examination Office (Prüfungsamt).
- Paper: DIN-A4
- Margins: 2.5 cm on the right, upper and lower side. 4cm on the left side.
- Font: Arial
- Font size: 12pt for main text, 10 pt for footnotes and for the captions of tables and figures.
- Line spacing: 1.5x
- Typographical alignment: the text should be justified (flush left and right).
- Citations:
  - For in-text references use the author-year format:
    - “Tetlock (2011) analyzes whether stock market investors appropriately distinguish between new and old firm-specific information.”
    - More than two authors: “Hillert et al. (2014) find that stocks that are particularly covered by the media have significantly stronger momentum.”
    - Several papers in same author-year: “De Long et al. (1990a) and De Long et al. (1990b) develop models in which rational arbitrageurs do not fully correct mispricing.”
    - Citation in brackets: “Media coverage directly affects the way in which investors collect, process, and interpret information (e.g., Engelberg and Parsons 2011; Tetlock 2007).”
  - Bibliography:

- Published papers with one or several authors:
  - Tetlock, Paul C., 2011. All the news that's fit to reprint: Do investors react to stale information? *Review of Financial Studies* 24, 1481-1512.
  - Engelberg, Joseph E., and Christopher A. Parsons, 2011. The causal impact of media in financial markets. *Journal of Finance* 66, 67-97.
  - De Long, J. Bradford, Andrei Shleifer, Lawrence H. Summers, and Robert J. Waldmann, 1990a. Noise trader risk in financial markets. *Journal of Political Economy* 98, 703-738.
  - De Long, J. Bradford, Andrei Shleifer, Lawrence H. Summers, and Robert J. Waldmann, 1990b. Positive feedback investment strategies and destabilizing rational speculation. *Journal of Finance* 45, 379-395.
- Working papers:
  - Peress, Joel, 2008. Media Coverage and Investors' Attention to Earnings Announcements. Working paper.
- There is no need to state exact page number(s) if you refer to a general finding of a paper. However, if you refer to a specific detail (e.g., one of the data requirements) or if you quote directly, please additionally refer to the exact page number(s) within your text: "'Given the magnitude of momentum profits, about 12% per year in the United States and Europe, they are unlikely to be explained by risk-based theories.'" (Choi et al., 2010, p. 362)'
- Again, the leading finance journals provide a good orientation for suitable citation styles. Independent of the specific citation style (e.g. Chicago style) you are using, apply it consistently.
- Footnotes:
  - Consecutive numbering throughout thesis
  - When should you use footnotes?
    - To provide additional information of minor importance (e.g., unreported robustness checks)
    - To cite a large number of papers
    - Avoid unnecessary footnotes: If it is really important it should be included in the main text. If not: Is it important enough to be included at all?
- Section numbering:

- Hindu-Arabic numerals
- Separate sections and sub(-sub)sections by ‘.’ as in:
  - 2 Literature review
  - ...
  - 2.1 Literature on price momentum
  - ...
  - 2.2 Literature on earnings momentum
  - ...
- Page numbering:
  - From cover page up to list of abbreviations in Roman numerals.
  - From introduction onwards in Hindu-Arabic numerals.
- Page limit for the main text (i.e. from introduction to conclusion) incl. figures and tables:
  - Bachelor theses: 15 to 20 pages.
  - Master theses: 40 to 45 pages.
  - Exceeding the page limit may result in a lower grade.
- Relevant tables and figures have to be included in the main text. Minor results, such as robustness checks where you vary data requirements marginally, can be reported in the appendix.

### **Submission of the (printed) thesis:**

Please see the Rules and Regulation and/or consult the Examination Office for information on the submission of your thesis.

### **Additional materials to be submitted:**

The following digital information should be submitted on a CD, DVD, or flash drive together with the printed thesis:

- Your thesis as a pdf or Word file (doc or docx) as in the printout. You have to submit an electronic version of your thesis no matter whether your thesis includes an empirical analysis.
- The datasets used in your paper. It is sufficient to submit the raw input files and the final output files.

*Tip:* you can use zip files to save storage space. Typically, zipping Stata datasets decreases file size by 70% or more.

- Code:
  - You should include everything that is necessary to get from the raw input files to the final output files and to the results reported in your thesis. You need to use a programming language or computer program which is available at the Goethe University's computer lab, for example, Stata.
  - You should add a sufficient number of comments to your code to make it easier to follow, for example, mark sections (e.g., data work, summary statistics, regression analysis) and subsections (e.g., merge of CRSP and Compustat data, construction of control variables, regression table X).
  - In your code, use meaningful variable names like "market\_cap\_ln" for the log of market capitalization. Do not use cryptic names like "var123".
  - Label your variables. For example, a good label for "market\_cap\_ln" is "LN(market capitalization in million USD)".
- Please label your CD, DVD, or flash drive (e.g., put a name tag on it).
- Please note that your CD, DVD, or flash drive will not be returned.