UNIVERSITÄT DUISBURG ESSEN

Offen im Denken

Chair of Finance

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Lecture Winter Semester 2021/2022

Empirical Finance

In-person/Zoom Meetings & Videos
Mo., 2–4 p.m. (s.t.); Room: LB 113

In the accompanying meetings, the presentations of the students are given, questions about the lecture (videos) are answered, and the topics covered are discussed.

Date	Topic	
13.12.21		Kick-Off and Organizational Matters
	1.	Introductory Econometrics and Implementation of an Empirical Project
	2a.	Asymmetric Information in Asset-Backed Securities (Foundations)
20.12.22	2b.	Asymmetric Information in Asset-Backed Securities (Paper)
	3a.	How Natural Catastrophes Affect Reconstruction Costs (Foundations)
10.01.22	3b.	How Natural Catastrophes Affect Reconstruction Costs (Paper)
	4a.	Exposure at Default Modeling (Foundations)
17.01.22	4b.	Exposure at Default Modeling (Paper)
	5a.	The Impact of Natural Catastrophes on CAT Bonds (Foundations)
24.01.22	5b.	The Impact of Natural Catastrophes on CAT Bonds (Paper)
	6a.	Measuring Credit Default Risk Based on Account Activity (Foundations)
31.01.22	6b.	Measuring Credit Default Risk Based on Account Activity (Paper)

On the following pages you will find a detailed description of the contents of each session and references. The latter are made available for download on Moodle. Please also consider the following organizational notes.

Organizational Notes

Update 07.12.2021: In light of the current situation related to COVID-19, the kick-off meeting (13.12.2021) as well as the session covering topics 2b/3a (20.12.21) will take place as a Zoom meeting. You can find the meeting invitation to the Zoom meetings in Moodle. We will inform you about the format of the other upcoming sessions in due time via the known channels (Homepage/Moodle).

The course "Empirical Finance" combines aspects from lectures and seminars. The contents of the lectures are prepared and presented partly by the chair and partly by students. The objectives of the course are to strengthen skills in econometric methods, to discuss current topics in the field of finance, and to prepare students for empirical theses. For this purpose, current empirical publications dealing with finance-related issues are prepared and discussed in terms of both content and methodology. In-depth reading and preparation of the individual publications covered in advance of the respective lecture is an elementary prerequisite for successful participation.

The course "Empirical Finance" is aimed at students in the master's programs in Accounting & Finance and Management & Economics (UDE), students in the master's program in Econometrics (UAR) and students from the RGS Econ. The knowledge of the content of the course "Econometrics for MA Students" (or similar) is a prerequisite. If you would like to rework this content before the lecture starts, we recommend the book "Introductory Econometrics" by Wooldridge.

The exam is conducted in German (or in English upon request). However, since the publications are regularly written in English, it will be necessary to read and analyze English-language texts.

You can earn bonus points for the exam in advance by making a (voluntary!) contribution such as a presentation, discussion, etc. of one of the publications covered, and by active and constructive participation in the discussion. The presentation should be given in German/English depending on the audience.

To give you a better feeling for the procedure of the lecture as well as for the requirements for the preparation of the publication assigned to your group, the chair will completely present the first publication. The following procedure is planned for the subsequent sessions on topics 3 to 6 (see schedule):

- Within a two-hour lecture, the chair will introduce you to the theoretical and methodological foundations for understanding the publication discussed next.
- Until the next lecture, the whole course reads the publication, and the responsible group prepares a presentation, discussion, etc.
- Furthermore, the chair offers you the opportunity to ask questions on the topics covered in the Moodle forum. These questions are essentially answered by the group responsible for the specific topic, with the chair taking a supporting role.
- The next lecture will start with the group presentation of the publication.
- After this presentation, open questions that arose while reading the publication or also during the lecture (and have not yet been conclusively resolved in the Moodle forum) will be addressed and the topic will be discussed together.

Lectures are provided asynchronously - via video (see Moodle) - and student's presentations synchronously – in face-to-face meetings.

The lecture will start with a kick-off meeting on December 13, 2021, at 2 p.m. (s.t.). In this context, organizational as well as content-related aspects of the lecture will be discussed and the registration for a (voluntary!) contribution (presentation) will be done.

In addition to the slides, videos of the lectures are provided. These videos contain the same content that is normally covered during face-to-face lectures. Students can thus independently work on the lecture content. The videos, as well as the other lecture materials, can be obtained via Moodle.

To enable an exchange between lecturers and students, accompanying face-to-face meetings will be held in the context of the students' presentations. Thereby, you will also have the opportunity to ask questions about the contents of the lecture.

The videos as well as the respective slides will be made available at least one week before the corresponding in-person meeting (see schedule). The materials (videos and slides) should be covered during this week (i.e., before the in-person meeting)

Brief description of the topics

Topic 1: Introductory Econometrics and Implementation of an Empirical Project

An introduction to empirical work is provided. Thereby, the importance of econometrics is illustrated. Furthermore, causality and the ceteris paribus concept are discussed. The following basics from the course Econometrics (MA) will be briefly repeated: Gauss-Markov assumptions, BLUE property of OLS estimators, omitted variables bias, heteroscedasticity, goodness-of-fit measures, inference (hypothesis testing, t-test, F-test), dummy variables, and transformations.

Before discussing selected empirical issues in the following topics, this section also outlines how to conduct an empirical project and will provide you with useful tips and hints, starting with the elaboration of the research question, the literature and data research to the empirical analysis, and the writing of an empirical article.

Contained methods: Gauss-Markov Assumptions, BLUE Properties, Omitted Variables Bias, Heteroscedasticity, Goodness-of-Fit Measures, Inference (Hypothesis Testing, t-Test, F-Test), Dummy Variables, (Log-)Transformations

Reference: Wooldridge (2015)

Topic 2: Asymmetric Information in Asset-Backed Securities

In this topic, we use a research paper that analyzes principal-agent problems in asset-backed securities (ABS) transactions and shows how they can be analyzed using the methods learned. In doing so, the paper investigates whether securitization of loans using ABS leads to a bank (originator) performing worse monitoring of borrowers, and whether investors take into account a lack of incentives for monitoring in the valuation of ABS.

Contained methods: OLS, Heteroscedasticity, Inference, Dummy Variables

Reference: Gürtler/Hibbeln (2013)

Topic 3: How Natural Catastrophes Affect Reconstruction Costs

After natural disasters, damages must be repaired and destroyed houses must be rebuilt. The labor supply in the construction sector reacts inelastically to the increased demand for labor that can occur after natural disasters. As a result, the wages of qualified workers rise significantly, which consequently leads to increased insured reconstruction costs. The article empirically quantifies the size of this “demand surge” effect using natural disasters and their associated inflation shocks in the United States.

Contained methods: Difference-in-Differences, Non-Linear Functional Forms, Clustered Standard Errors

Reference: Döhrmann/Gürtler/Hibbeln (2017)

Topic 4: Exposure at Default Modeling

In this topic, the risk parameter Exposure at Default (EaD) is analyzed. It is shown how the EaD should be modeled to obtain an unbiased expected loss (EL). Furthermore, it is shown which type of modeling leads to systematic biases. The discussed models are empirically validated by in- and out-of-sample analyses.

Contained methods: In-Sample and Out-of-Sample-Analyses (Prediction), Overfitting, k-Fold Cross Validation, Measures of Prediction Accuracy, Estimation Approaches (Fixed-Horizon vs. Variable-Horizon), Winsorizing

Reference: Gürtler/Hibbeln/Usselmann (2018)

Topic 5: The Impact of Natural Catastrophes on CAT Bonds

This article focuses on explaining the risk premia of catastrophe bonds, the so-called “CAT bonds”. In particular, the explanatory factors influencing the premiums of CAT bonds are empirically analyzed. Furthermore, it is investigated whether and to what extent natural disasters and financial crises have an impact on the development of CAT bond premiums and whether CAT bonds (as often claimed in the literature) are so-called zero-beta investments and, thus, particularly well-suited for diversification purposes.

Contained methods: Panel Datasets, Pooled OLS, Fixed-Effects Models, Random-Effects Models, Interaction Effects

Reference: Gürtler/Hibbeln/Winkelvos (2016)

Topic 6: Measuring Credit Default Risk Based on Account Activity

When forecasting loan defaults, lenders have a variety of sources available to generate private information. However, little is known about the synergies that arise from the combined use of different information sources. This article specifically examines the synergies in generating private information from a customer’s checking and credit card accounts. In particular, information from a customer’s checking account can be used advantageously in predicting a credit card account default.

Contained methods: Linear Probability Model, Logit and Probit Regressions, Pseudo-R^2, Partial Effect at Average, Average Partial Effect

Reference: Hibbeln/Norden/Usselmann/Gürtler (2020)

References:

Döhrmann, David/Gürtler, Marc/Hibbeln, Martin (2017): Insured Loss Inflation: How Natural Catastrophes Affect Reconstruction Costs. Journal of Risk and Insurance 84: 851-879.

Gürtler, Marc/Hibbeln, Martin (2013): Do Investors Consider Asymmetric Information in Prizing Securitizations? Working-Paper.

Gürtler, Marc/Hibbeln, Martin/Usselmann, Piet (2018): Exposure at Default Modeling – A Theoretical and Empirical Assessment of Estimation Approaches and Parameter Choice. Journal of Banking & Finance 91: 176-188.

Gürtler, Marc/Hibbeln, Martin/Winkelvos Christine (2016): The Impact of Financial Crisis and Natural Catastrophes on CAT Bonds. Journal of Risk and Insurance 83: 579-612.

Hibbeln, Martin/Norden, Lars/Usselmann, Piet/Gürtler, Marc (2020): Informational Synergies in Consumer Credit. Journal of Financial Intermediation, 44: 10083.

Wooldridge, Jeffrey (2015): Introductory Econometrics: A Modern Approach, 6th ed. Boston, Cengage Learning.