MARKET MICROSTRUCTURE PhD COURSE OVERVIEW[1]

UTS Course code 25885; Part of the FIRN National PhD Program

COURSE COORDINATOR AND INSTRUCTOR

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COURSE DATES AND LOCATION

Module 1: 3–4 August, 2018
Module 2: 7–8 September, 2018
Module 3: 12–13 October, 2018

Location for all modules:
UTS Business School (Dr Chau Chak Wing Building), 14–28 Ultimo Rd, Ultimo, Sydney NSW

COURSE DESCRIPTION

This course provides a rigorous overview of the field of market microstructure. It covers microstructure theory, the current state of practice in market design/regulation, and empirical models/methods used in microstructure research.

The microstructure theory covered in the course includes the classic models of the trading under information asymmetry, describing the interaction of different types of traders, the nature of adverse selection in financial markets, the effects of inventory management by liquidity providers, the causes of variation in liquidity, and the process by which information becomes reflected in prices.

The empirical market microstructure models and metrics covered in the course are organised into the two categories: (i) liquidity, including spreads, depth, price impact, and implementation shortfall; and (ii) price discovery, including high-frequency measures of informational efficiency, measures of the information content of individual trades or orders, and models to quantify contributions to price discovery from multiple prices.

The course also covers market design and how it affects the functioning of markets. This includes topical issues such as fragmentation of markets, dark trading, and algorithmic/high-frequency trading. The course places market microstructure in the broader context of finance by reviewing how market microstructure impacts on asset pricing and corporate finance.

The course places an emphasis on preparing students to conduct empirical market microstructure research. This is achieved through a set of practical tasks woven in throughout the course, starting with collection of market microstructure data, cleaning and preparing the data, estimating a range of market microstructure models and metrics using the SAS statistical software package, interpreting the results of the models/metrics, and finally applying the empirical tools to analysis of market microstructure research questions. The course allows students to learn by doing.

The course is structured around three intensive weekends of face-to-face instruction, involving a mix of lectures/discussions and practical sessions in a computer laboratory. Students are expected to complete pre-reading before each weekend and will have practical tasks to work on between weekends. The face-to-face sessions are supplemented by a collection of online materials including screencasts of the empirical exercises so that students can revise the covered materials at their own pace. At the end of the course students will undertake a small microstructure research project, which will draw together the knowledge and skills gained during the course.

COURSE OBJECTIVES

The course aims to prepare students for undertaking empirical market microstructure research. By the end of the course, students should be able to:
  (i)   identify good market microstructure research questions, including those stemming from recent developments in financial market structure;
  (ii)   design and execute empirical analysis, including sourcing and processing microstructure data and estimating microstructure models/metrics;
  (iii)   interpret results using theory and place them in the context of existing literature; and
  (iv)   discuss market design and how it influences outcomes, as well as how market microstructure interacts with other areas of finance, such as asset pricing and corporate finance.

PRE-REQUISITES

Knowledge of the SAS statistical software package is <u>required</u>. Students will not be able to learn SAS during the course. Students that wish to take the course and do not have working proficiency in SAS are advised to learn SAS before taking the course.[1] Without a sufficient working knowledge of SAS students will not be able to keep up with the empirical parts of the course and will not maximise their learning outcomes.

Statistics and econometrics at an advanced undergraduate level are also assumed knowledge.

COURSE CONTENT OVERVIEW

MODULE 1: Market design, microstructure theory, working with microstructure data
MODULE 2: Liquidity, and interactions between microstructure and asset pricing / corporate finance
MODULE 3: Price discovery, informational efficiency, and current issues in market microstructure

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[1] The SAS website has a number of tutorials and self-paced online learning resources. Some universities and research centres offer short courses in SAS. There are a number of books that teach SAS.