Chapter 14

Conducting Empirical Research or doing a project in Finance

1. Empirical Research Project: what and what for?

- Many courses at both undergraduate and graduate levels require: essay, dissertation, thesis of more than 10000 words (~ 30 pages)
- Select a topic of interest or relevance -> specify the project from start to finish
- Purpose: determine whether students can define and execute a piece of original research within given time, resources and report-length constraints.
- In econometrics: to grips with theoretical material, find out what practical difficulties econometricians encounter when conducting research
- Opportunity to solve a puzzle, potentially to uncover something that nobody else has.
- Develop time-management and report-writing skills
- Can provide a platform for discussion at job interviews
- Can be further studied at higher level: postgraduate or doctoral

- This chapter: general guidance to suggest how to go about the process of conducting empirical research in finance
- Objectives and required level vary from one institution to another

2. Selecting the topic

- Choosing an appropriate subject area: most difficult and crucial parts
- For most students: process starting with specifying a very general and broad subject area, and narrowing down to a much smaller and manageable problem.
- Based on interests and areas of expertise
- Example: financial markets, a particular interest in one aspect of a course…
- Choosing between quantitative and qualitative topics (case study, problem solving)
- Examples:
  - Quantitative analysis of data
  - Survey of business practice in the context of financial firms
  - New method for pricing a security, theoretical development of a new method for hedging
  - Analysis of new market or new asset class…
- Quantitative topics if data is available

Approaches/Directions

- Develop a new financial theory, new model for pricing options: unlikely to be successful and leave students with little to write about
- Empirical application involving estimating an econometric model appears to be less risky, since the results can be written up whether they are good or not

- Good projects must have an element of originality. Examples:
  - Standard techniques on data from a different country, new market or asset
  - New technique, existing technique for a different area
- Good projects contain in-depth analysis of the issues at hand (rather than superficial, purely descriptive presentation)
- Good project: interesting, have relevance for one or more user groups (researchers, practitioners)
- Best research: challenges prior beliefs and changes the way that the reader thinks about the problem under investigation

Transform broad direction into workably sized topic

- Objective of the project: to form and address a small problem
- Advisable: browse through recent issues of the main journals relevant to the subject area. This will show which ideas are relatively fashionable, how existing research has tackled particular problems.
- Journals: practitioner-oriented and academic journals
  - Practitioner-oriented journals: focused in a particular area, practical problems, less mathematical, less theory-based
  - Academic journals

3. Sponsored or Independent research

- Students may have the opportunity to work on a specific research project with a sponsor. Sponsor may choose the topic and offer additional expert guidance from a practical perspective. Sponsor may also provide confidential data and a job opportunity later.

- Disadvantages :
  - Few offers
  - Problems of most interest to practitioners are often of less interest to academic audience (different objectives)
  - The work is graded by academics

4. Research proposals

- Submission of a research proposal which will be evaluated and used to determine the appropriateness of the ideas and to select a suitable supervisor

- Similar form as a final report without results and conclusions (~ 6 pages)

- Include:
  - Motivations: why is it interesting and/or useful?
  - Should be a brief review of relevant literature, not covering more than 1/3 to 1/2 of total length
  - Questions and Hypotheses to be tested should be clearly stated
  - Discussion of the data and methodology that you intend to use
  - Time scale (optional): which parts to be completed by what dates

5. Working papers and literature on the internet

- Lag between a paper being written and published is 2-3 years. It means papers in journals are somehow outdated.
- However, security firms, banks and central banks across the world produce high quality research output in report form, available on the internet
- Suggestions for financial literature: Table 14.2

Table 13.2 Useful internet sites for financial literature

Universities

Almost all universities around the world now make copies of their discussion papers available electronically.

A few examples from finance departments are:

http://w4.stern.nyu.edu/finance/research.cfm?doc_id=1216 – Department of Finance, Stern School, New York University

http://http://fic.wharton.upenn.edu/fic/papers.html – Wharton Financial Institutions Center

http://haas.berkeley.edu/finance/WP/rpf.html – University of California at Berkeley

http://www.icmacentre.ac.uk/research_and_publications/discussion_papers – ICMA Centre, University of Reading, of course!

US Federal Reserve Banks and the Bank of England

http://www.bankofengland.co.uk/index.htm – Bank of England – containing their working papers, news and discussion

http://www.frbatlanta.org/ – Federal Reserve Bank of Atlanta – including information on economic and research data and publications

http://www.stls.frb.org/fred/data/wkly.html – Federal Reserve Bank of St. Louis – a great deal of useful US data, including monetary, interest rate, and financial data, available daily, weekly, or monthly, including long time histories of data

http://www.chicagofed.org/ – Federal Reserve Bank of Chicago – including interest data and useful links

http://www.dallasfed.org/ – Federal Reserve Bank of Dallas – including macroeconomic, interest rate, monetary and bank data

http://www.federalreserve.gov/pubs/ifdp/ – Federal Reserve Board of Governors International Finance Discussion Papers

http://www.ny.frb.org/research/ – Federal Reserve Bank of New York

International bodies

http://dsbb.imf.org/ – the International Monetary Fund (IMF) – including working papers, forecasts, and IMF primary commodity price series

http://www.worldbank.org/html/dec/Publications/Workpapers/domfincapmkts.html – World Bank working papers in finance

http://www.oecd.org/eco/wp/onlinewp.htm – Organisation for Economic Cooperation and Development (OECD) working paper series, searchable

Miscellaneous

http://www.devinit.org/findev/papers.htm – Finance and Development Research Program – interesting research output and links on various issues in finance, but especially relating to developing countries, such as banking crises, regulation, etc.

http://www.nber.org – National Bureau of Economic Research (NBER) – huge database of discussion papers and links including data sources

http://econpapers.repec.org/ – Econpapers (formerly WoPEc) – huge database of working papers in areas of economics, including finance

http://ideas.uqam.ca/ – IDEAS – a bibliographic database for economics, reportedly including over 500,000 searchable items

http://www.ssrn.com – The Social Science Research Network – a huge and rapidly growing searchable database of working papers and the abstracts of published papers

The free data sources used in this book

http://www.nationwide.co.uk/default.htm – UK house price index, quarterly back to 1952, plus house prices by region and by property type

http://www.oanda.com/convert/fxhistory – historical exchange rate series for an incredible range of currency pairs

http://www.bls.gov/ – US Bureau of Labor Statistics – US macroeconomic series

http://www.federalreserve.gov/econresdata/default.htm – US Federal Reserve Board – more US macroeconomic series, interest rates, etc. and working papers

http://research.stlouisfed.org/fred2/ – a vast array of US macroeconomic series

http://www.fin-rus.com/analysis/export/_eng_/default.asp – various financial time series, including stock indices, futures, available at high frequency

http://finance.yahoo.com/ – Yahoo! Finance – an incredible range of free financial data, information, research and commentary

6. Getting the data

- Important to think prior to doing anything further about what data are required to complete the project

- Many interesting and sensible ideas for projects fall owing to a lack of availability of relevant data
- Examples: confidential data, great financial cost, time-consuming to collect…

- Important: make sure that the data are available before deciding on a particular topic
- Data: paper form or electronic form (Reuters, DataStream, Bloomberg)…
- Careful in ensuring the accuracy of freely available data (free data sometimes turn out not to be)

7. Choice of computer software

- Depend on the tasks at hand
- Advisable to use a standard software package (by lack of time), not too sophisticated ones
- Best approach: conduct the estimation as quickly and accurately as possible to leave time free for other parts of the work

8. Finished project

- Different structures
- Standard form:

  - Title page: not numbered, with title, student name, advisor name, department
  - Acknowledgement: thank supervisor, data agency, sponsor…
  - Table of Contents: sections, subsections…
  - Introduction: general background, why it is important, why it is original, aims and objectives (not technical). Outline of the remaining part.
  - Literature review: review existing literature, summarize relevant articles
  - Data: source, format, features, limitations
  - Methodology: models, critical
  - Results: tables, charts, figures. Discussed and analyzed. Comparisons with previous studies.
  - Conclusions: restate original aim and outline of the most important results. Suggestions of future research.
  - References: follow the standard style.
  - Appendix: specific (technical) parts, computer codes to estimate models…

9. Presentational issues

- Assessors take into account both presentation of the document and its content

- Structure of the report should be orderly and logical
- Equations should be correctly specified
- No spelling mistakes, no typographical mistakes, no grammatical errors

- Final week: checking the draft paper before final submission by students and supervisors
- Comments, suggestions from friends can be helpful