

Birkbeck, Univ of London
MSc Finance / Finance and Commodities

How to Choose a Dissertation Topic

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(I did the MSc in 2008-2009, now doing a PhD in Mathematical Finance)

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Finding More Info on Dissertation

- **Dissertation Guidelines**
(See http://www.ems.bbk.ac.uk/for_students/msc_finance)
- **Student Handbook** (same location)
- **Beverley**
- **Previous MSc Students, Personal Tutors**

Key Points

- Worth 2 modules (i.e. 33% of overall mark)
- Only way to judge your 'individual' work.
- Proposal due approx 19/20th Feb (course handbook says 5th Feb, maybe wrong)
- Dissertation due end of August
- Single supervisor.
 - Expect 3-5 meetings of 30 minutes with your Supervisor.
 - Supervisors' time is limited in July / August, they may only visit Campus occasionally.
- Proposal is your roadmap.



Timetable - Suggested



Dissertation

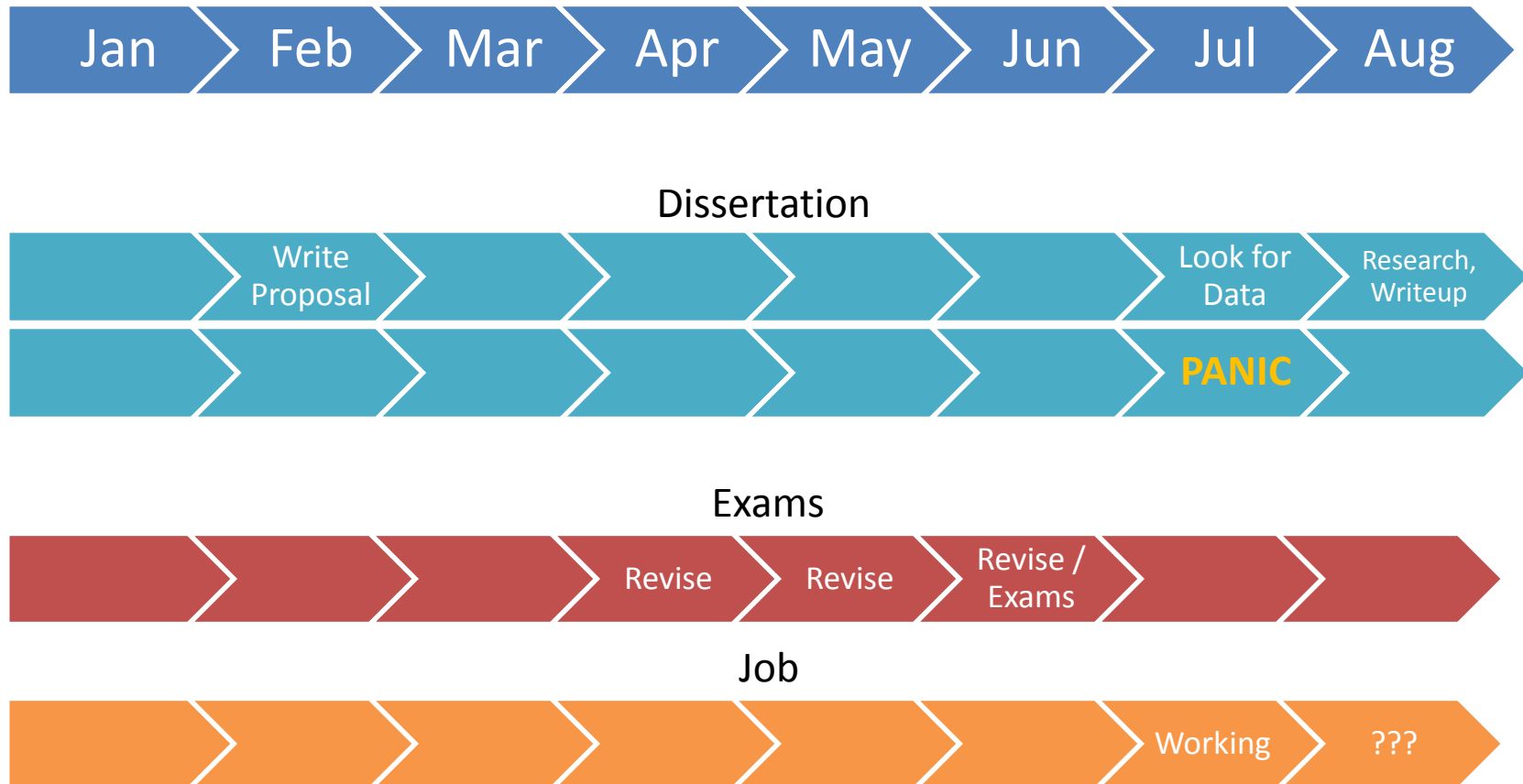


Exams



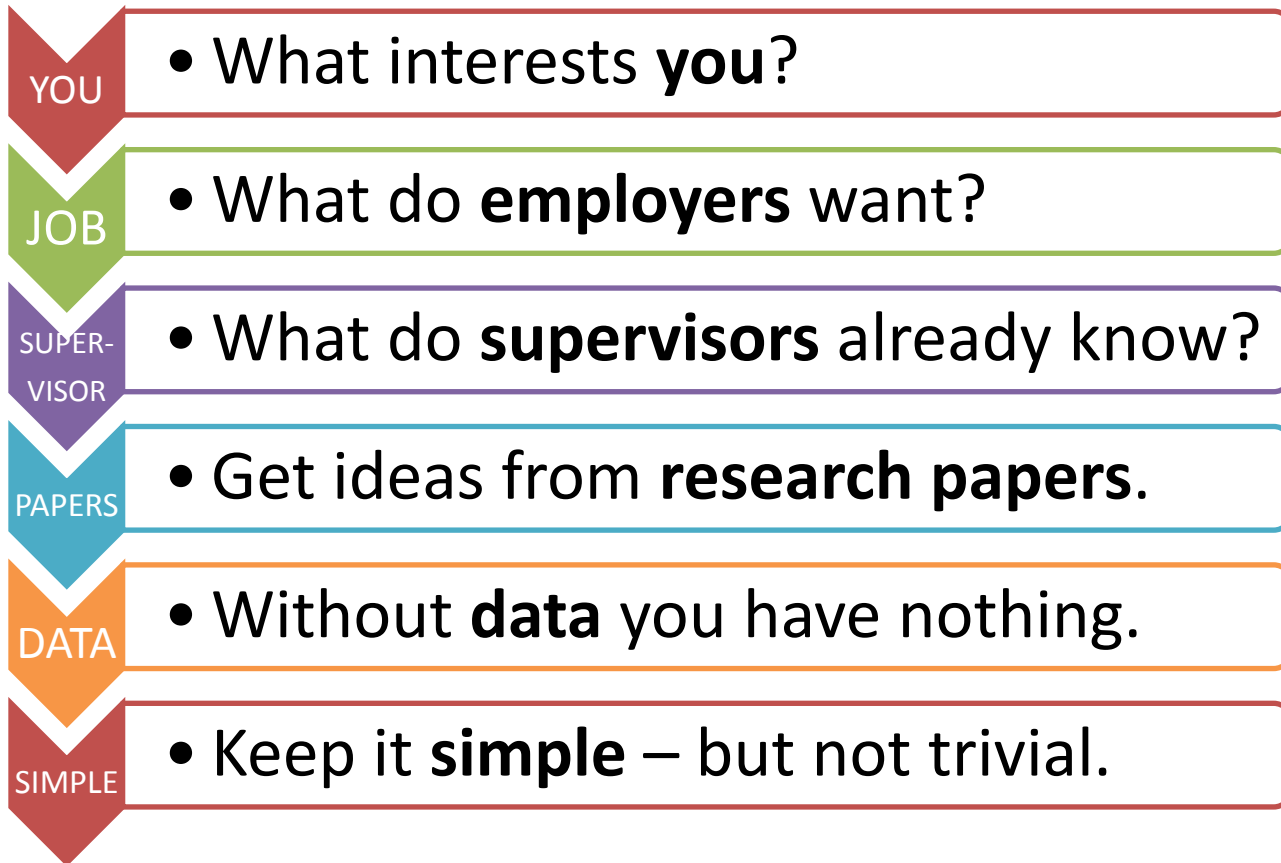


Timetable - Risky Method





Choosing a Topic



What interests **you**?

- What would you like to know a **lot** more about by August?
- Existing skills and interests
 - Software?
 - Econometrics?
 - Prior work experience?

What do employers want?

- List your dissertation on your CV.
- Title should be clear and interesting.
- Sell your skills and interests through your dissertation.
- Great topic to discuss at interview.

What do supervisors already know?

- An interested supervisor is a helpful supervisor.
- Read the staff web pages.
- Also look for people who **didn't** teach you.
- Ask PhD students for advise on supervisors.
- Talk to several (lots) of possible supervisors. It's not rude.
- Students get re-allocated if supervisors are too popular (this is bad for you, try to avoid)
- Dissertation is a good route into a PhD...

What do supervisors already know? – For Example

<http://www.ems.bbk.ac.uk/faculty/geman/>

Published Papers

"*Commodities and Numéraire*", 2010, Encyclopedia of Quantitative Finance, Wiley Publisher.

"Realized Variance Options and Convex Orders", 2010, *Quantitative Finance*

"On Pricing Risky Loans and Collateralized Fund Obligations", 2009, *Journal of Credit Risk*

"**Forward Curves**, Scarcity and Price Volatility in **Oil** and Natural Gas Markets", 2009, *Energy Economics*

"Modelling Electricity Prices with Forward Looking Capacity Constraints", 2009, *Applied Mathematical Finance*

"Modeling Commodity Prices under the CEV model", Winter 2009, *Journal of Alternative Investments*

"**WTI crude oil Futures** in portfolio diversification : The time-to-maturity effect", 2008, *Journal of Banking and Finance*

"Valuation of default-sensitive claims under imperfect information", 2008, *Finance and Stochastics*

"Correlations and the Pricing of Risks", 2008, *Annals of Finance*

"A lattice-based Method for the Pricing of Energy Derivatives in the Threshold Model", 2008, *Applied Mathematical Finance*

"Time Consistency in Managing a Commodity Portfolio: A Dynamic Risk Measure Approach", 2008, *Journal of Banking and Finance*

"Seasonal and Stochastic Features in **Commodity Forward Curves**", 2007, *Review of Derivatives Research*

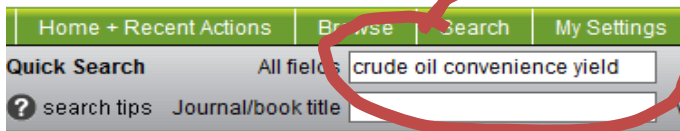
"Water as the Next Commodity", 2007; *Journal of Alternative Investments*

"*Mean Reversion versus Random Walk in Oil and Natural Gas Prices*", 2007, Advances in Mathematical Finance, Birkhäuser Boston

Get ideas from research papers

- Learn how to access research papers (hint, Birkbeck e-library)
 - JSTOR (older papers, classics)
 - ScienceDirect (the best for modern stuff)
 - Google Scholar
 - What have potential supervisors published recently?
- Download 10 to 20, print.
 - Skim, not read. Look for patterns. Highlight. Keep.
 - Be prepared to discard 50%+.

Get ideas from research papers – my own experience



2,448 articles found for: ALL(crude oil convenience yield)

[Save Search](#)

Uncertainty and the convenience yield in crude oil price backwardations

Energy Economics, Volume 23, Issue 5, September 2001, Pages 533-548

Timothy J. Considine, Donald F. Larson

[Preview](#) [PDF \(1347 K\)](#) | [Related Articles](#)

Commodity convenience yield and risk premium determination: The case of the U.S. natural gas market

Energy Economics, Volume 28, Issue 4, July 2006, Pages 523-534

Song Zan Chiou Wei, Zhen Zhu

[Preview](#) [PDF \(140 K\)](#) | [Related Articles](#)

Forward curves, scarcity and price volatility in oil and natural gas markets

Energy Economics, Volume 31, Issue 4, July 2009, Pages 576-585

Héllyette Geman, Steve Orland

[Preview](#) [PDF \(1373 K\)](#) | [Related Articles](#)

The dynamics of crude oil price differentials

Energy Economics, *In Press, Corrected Proof*, Available online 16 June 2009

Bassam Fattouh

[Preview](#) [PDF \(681 K\)](#) | [Related Articles](#)

Get ideas from research papers

- General format of research papers
 - Abstract
 - Literature Review
 - Data Summary
 - Statistical / Econometric Techniques
 - Result of Analysis
 - Conclusion
- **It's a good template for your dissertation**
- Old ones are often easier to read, but modern ones are more standardised (but deeper econometrics)

Without data you have nothing

- Do you have a special access (intern, employer etc)
 - CHECK you can use that data use outside the organisation

Easy to Get

- US Share Prices (Yahoo Finance)
- Daily Data (Yahoo Finance)
- US Commodity Spot Prices (Datastream)
- Interest Rates (Federal Reserve, Bank of England)

Moderately Easy

- OECD Share Prices
- US Commodity
- Commodity Futures Prices (Datastream)

Hard to Get

- Developing World Share Prices
- Hourly / Tick Data
- Bonds
- Credit Ratings / Products
- Non-US Commodities

Without data you have nothing

- Request any logins, permissions you need EARLY
- Public data is the safe choice
- Check frequency (daily good, yearly bad)
- Compare Apples with Apples
 - Currency / frequency conversions makes the story complicated
- Check length / quantity of data
 - Comparing data : You are limited by the weakest link

Recommended Data Sources

- **Yahoo Finance** (By far the easiest)
- **Datastream** (Harder to use, only 1 PC in Birkbeck Library, afternoons only)
- **FRED** (<http://research.stlouisfed.org/fred2/>)
- **data.un.org** (registration required?)
- www.statistics.gov.uk
- **UK Economic and Social Data Service**
(www.esds.ac.uk) (registration required?)

Keep it **simple** – but not trivial.

- Is factor X consistent in locations A and B?
- Has factor X changed over time?
- How does factor X compare across assets?
- Is factor X a good predictor of Y?
- How are factors X and Y related?
- Are there arbitrage opportunities in market X?
- Is technique X suitable in adverse market conditions?

Summary

Start NOW!

- Or you'll regret it in July.

Papers

- Use as your template.

Data

- Data => topic
- Not topic => data

Supervisors

- Make friends now!

Good luck...

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