

Tips for Finance Ph.D. students

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Caveat: The tips below are almost all subjective opinions. You'll surely find other professors who disagree with me. Get advice from a variety of people.

Some of these tips are from Raife Giovinazzo, a classmate of mine from Chicago.

How do I come up with good research ideas?

I once asked Fama for advice on coming up with ideas. He basically gave me no advice—he said there's no algorithm for finding ideas. I asked him whether it helps to read lots of journal articles. He said, "Yeah, it helps if you want to come up with lots of bad research ideas." I find it impossible to sit down and deliberately try to think of ideas. Rather, ideas just tend to come, usually when you least expect it. Nevertheless, I think there are concrete things you can do to help think of research ideas :

- Choose a favorite Wharton professor, then read his past 3—6 papers very, very carefully. You'll probably come up with some ideas in the process, and the odds are that the professor will be interested in your ideas. The danger, of course, is that your idea won't be extremely creative.
- Read *The Economist* and *The Wall Street Journal* regularly. Don't just read the finance articles. I've gotten good ideas from articles on technology and even history.
- Go to the Tuesday, Thursday, and Friday seminars. Listen very carefully not only to the presenter, but also to the comments from the audience. Too many PhD students skip seminar. They don't realize that attending seminar is one of the best ways to learn how to do finance research. It's okay if you don't understand what's going on; I still feel lost lots of the time. I got my dissertation idea by attending a lunch talk.
- Take a vacation or a few days off. My best ideas usually come when I'm well rested.
- Be a TA, especially for a PhD course or advanced MBA course if possible.
- Take advanced finance PhD classes, and follow a strategy of digging deep on a few topics/classes/papers that interest you instead of studying many topics superficially. Notice this is possibly different from the strategy for getting a good grade.

In general, I find it more helpful to study a small number of papers/topics in great detail instead of casting a wide but shallow net (e.g. reading all the *Journal of Finance* abstracts).

It's extremely important to keep a journal or list of research ideas you have. Record even the bad ideas. When you have an idea, write it down as soon as possible, and try to write a lot about it. A stream of consciousness style works well in the research idea journal. When curriculum paper time comes around, you'll be very happy you have this journal. I keep my journal as a Word file on my computer.

How do I decide which ideas to pursue?

Once you have your list of ideas, how do you choose which one to work on? Here's the method I follow when there's not a clear winner:

1. I choose my favorite 10-20 ideas, then I evaluate each idea along several dimensions: importance of topic, novelty, feasibility / chances of failure, creativity, audience (will it excite the people I want to excite?), whether I like the topic, and whether the topic will lead to more cool papers (i.e. a research agenda).
2. Using these criteria, I pick my 3 or 4 top ideas. For each idea, I write a proposal that's two pages long, double spaced. Each proposal contains 4 things: (1) the research topic stated as a one-sentence long-question (this is usually the hardest part), (2) how I propose to answer the question (e.g. basic model assumptions, which data, what regressions), (3) what I expect to find, and (4) how this contributes to the literature. It's usually harder to write these proposals than you'd think. I find that writing these proposals forces me to think very clearly about what I'm doing.
3. Meet with 2-3 professors to discuss the proposals. If you've written your proposals as I described, you'll find it very easy to discuss the ideas with the profs, and you won't waste their time. The profs will tell you whether your idea has been done already, whether it's interesting, and whether it's feasible. I think it's tough to strike a balance between choosing the idea you think is best and choosing the idea the profs like the best.

What's the best way to talk to professors about my research?

Briefly and clearly. Some tips:

- You must prepare before talking to professors. If you're going to talk to a professor, especially one you don't know very well, prepare a short document about what you want to talk about. Write this document well. Revise it once or twice. Bring this document to the office meeting, but you don't have to give it to the prof. Your thoughts will be much clearer.
- Most profs won't want to engage in small talk with you. Don't take this personally. Get straight to the point, and get out of the office as quickly as you can. Professors will really appreciate it if you're efficient with their (and your) time; they'll be more interested in working with you long term.
- If it's your second time talking to a professor about a topic, briefly remind the professor what you're doing. He/she will probably have forgotten.
- Listen very carefully. Professors complain all the time about certain PhD students who don't listen to professors' advice. We're trying to help you! Before you leave the office, you might want to briefly repeat back to the professor the main points from the discussion, just to make sure you've understood correctly.

- What's the right frequency for meeting with your main advisor? Depends on the prof. At most once per week. Probably more like once every 3-4 weeks.

General research advice:

- Read John Cochrane's essay about how to write finance research papers . It's some of the best research advice I've ever gotten. Here it is:
http://faculty.chicagobooth.edu/john.cochrane/research/papers/#for_phd.
- Don't be in denial about your research. Steve Levitt, of *Freakonomics* fame, used to say that it's crucial to kill bad projects early. Sometimes when I'm working on a project, I can hear a little voice in the back of my head saying, "Luke, this project sucks! Why are you working on it?! Move on to a different project!" I'm often in denial about this voice, which means I spend a few more months working on the project before I finally admit that it sucks, and voila, I've just wasted a few months of my life. Listen to the little voices! Spending lots of time writing is a good way to force yourself to listen to the little voices.
- Write early and write often. John Cochrane used to say he spends at least half his time writing. The writing process should start at the very beginning of the project, not at the very end! I have a draft of my paper written on the very first day I start a project. Sure, this very first draft is only two pages long and it sucks, but it's still a draft. I revise the draft continuously as I add new results. My 2nd year paper was on draft #28 when I finally turned it in; in retrospect, it should have been draft #50 (I wish I'd started writing it earlier). For empirical work, write the empirical documentation (Variable definitions, details on creating the database, table captions) before doing the analysis. It will save you time in the long run. There are a few advantages to writing early and often. First, writing forces you to think clearly about what you're doing. This is a major time saver in the long run. When people wait until the very end to "write up their results," they realize through the writing process that their logic was all wrong and that they have to re-do all their results. Second advantage: You won't forget what you've done. Third, you always have a draft ready to show professors and classmates.
- Arnold Zellner's wonderful advice: The KISS principle. "Keep It Sophisticatedly Simple." The most successful and convincing models (theoretical and empirical) are usually the simplest models. Always start simple, and then get progressively more complicated / realistic.
- Stuck on something in your research? Ask your classmates, especially older classmates, for help. There's probably someone who had the same problem and knows how to deal with it.
- I once asked a prof for some research advice. He said "choose one thing, and do it very, very well."
- Slow and steady wins the race. Do things carefully and correctly the first time, and you'll save yourself lots of time in the long run.

Tips on living through it

Research is tough. One minute you'll be convinced you're the next Nobel Laureate, and a few minutes later you'll find a bug in your code and wonder whether you're cut out for the PhD program. Most of my PhD classmates agreed that the last few years of my PhD were some of the toughest in our lives. Some tips:

- Help each other! Bounce ideas off each other. Share code. Etc. Think of yourselves as a team.
- Watch out for each other. Make sure all your classmates are okay. Haven't seen Joe Blow for week? Invite him out for a coffee and make sure everything's going okay. He'll repay the favor some day.
- Stay healthy. Don't become another PhD slob. Eat healthy, exercise, and keep a regular sleep schedule.
- Find some balance in your life. Find a hobby. Take at least one full day off work every week. Spend time with friends.

Tips on saving time and staying organized

I've found that one of the biggest challenges in research is staying organized. Some tips:

- I wish I'd spent more time early on learning how to use software that would have saved me TONS of time in the long run. You're going to have to learn this software eventually, so you might as well learn it now. If you're doing empirical work, you should learn SAS (use *The Little Sas Book*), Matlab, and Stata. Maximize your use of Matlab and SAS and Stata, and minimize your use of every other type of software, especially Microsoft Excel and Access. Older students will probably know where to find "cheap" copies of these software tools.
- Back up all your work at least once a day, preferably twice or more. I backup continuously using SugarSync.
- You might as well learn LaTeX now, since you'll have to do it someday anyway and it's a lot better than Microsoft Word for mathy stuff. LaTeX is word processing software that's very good for making tables and equations. I never do algebra with pencil and paper any more—I do it all with LaTeX using the Scientific Workplace interface. It would have saved me lots of time if I'd done all my homework with LaTeX, too. It helps me avoid mistakes and saves me time in the long run.
- Keep a research journal in addition to keeping a draft of your paper. The journal is for all those stupid details that won't end up in the draft of your paper. My research journal is a tex file I edit in Scientific Workplace. Use your journal a lot. My journal is open at all times when I'm doing research on my computer. The journal from my latest project is well over 100 pages long. It contains very mundane but valuable notes, such as the following: "The number of firms in firms in CRSP more than doubles from 19721031 to 19721130. Also a big jump from 196205 to 06. What the f*\$% is going on here?!" These are obviously comments that I don't want to keep in my draft of the paper. You can also use the journal to keep notes on papers you read,

outstanding questions you have, follow-on ideas, etc. I keep a separate Tex journal for notes on papers I read.

- I've finally found a good way to keep a library of journal articles. I download a .pdf of every journal article I look at, and I save these files in a single directory on my computer. I give the files names like fama_french_1993.pdf so they'll be easy to find. I find it very useful to have all the papers in one folder on my computer, since I may use a given paper in multiple projects. I save lots of paper and space in my apartment by not printing out the articles. I also read papers on my computer screen instead of on paper; it's easier for me to take notes electronically this way. You can see that I'm moving toward a "paperless office."
- Pandora. Okay, this is the opposite of a tip about saving time, but Pandora has improved my quality of life tremendously.

Misc. tips for empirical work

- Arnold Zellner's wonderful advice: Plot your data! Visualize your data some way before you start running regressions. This is important, since your data will often contain errors (e.g. stock return = 666, "the return of the beast") or outliers you'll only catch by looking at the data.
- Extracting data: If you're going to extract some data from a database, you might as well extract all variables and all firm/years. When querying the WRDS databases, you'll find yourself wondering, "Should I download data on this variable?" Download them all! I ignored this advice and wasted lots of time re-downloading data from WRDS because I hadn't gotten all the variables I needed.
- Downloading from WRDS: Never download using the fancy web interface. Download using PC-SAS connect. See the WRDS website for instructions. Saves tons of time in the long run.
- Making LaTeX tables: Format the table in Excel, then convert to LaTeX using the Excel-to-Latex Excel plug-in, available for free online.
- A huge chunk of your time will be spent finding unique identifiers to your data. Advice: don't just assume something is a unique identifier. Check whether it is! For instance, you might think that PERMNO and date is a unique identifier in CRSP data. After all, CRSP says it is. But it's not!! Just check!!
- Be very careful with the timing of annual Compustat data. Just because a record is labeled with "yeara = 1998" does NOT necessarily mean that the accounting data are for January 1, 1998 - Dec. 30, 1998 . Pay an extreme amount of attention to variable FYR, which is the month when the company's fiscal year ends. NOT ALL COMPANIES' FISCAL YEARS ENDS IN DECEMBER!!! This is very tricky. Read the manual very carefully.
- If you want Compustat data, get it from the merged CRSP-Compustat database, not the straight Compustat database. As far as I can tell, the only difference between these 2 databases is that the merged ones contain CRSP PERMNOs, which allow you to link Compustat data to stock returns in CRSP. The CRSP-Compustat database does not have what you might think it has--it is not a single database with both CRSP and Compustat data. Rather, the CRSP-Compustat database is two separate but linked databases: a CRSP database and a Compustat database, but both have npermnos in common so you can link the data in the two. You will need to decide a

critical question of WHEN to link records--i.e., is the accounting information from Mar 1, 1996 to Feb 28, 1997 related to the monthly returns from Mar 96 - Feb 97, or from Mar 97 to Feb 98, or from June 97 to May 98, or what?

- CRSP prices can be negative--negative prices mean the price was the average of the bid-ask spread because there were no trades that day. So don't throw out negative prices, but be sure to correct for them in your code (e.g., by taking absolute value). There are various observations you should ignore in CRSP. A partial list is as follows: Duplicate permno-months in CRSP NoShr: No shares in CRSP (i.e., shrout not > 0) NoPrc: No price (i.e., abs(prc) not > 0) NoExch: Not on AMEX, NYSE, NASDAQ (i.e., exchcd ne 1,2 or 3) NoShrCd: Not Common Stock (i.e., shrcd ne 10 or 11) Duplicate Link between CRSP & Compustat (i.e., linkcode = LD or LF) ne means "not equal to" in SAS, hence my shorthand descriptions above. I think this will help a lot--it took me a really long time to figure out the need to ignore that list of observations above!