How to Succeed in Academia
or ~~Die Trying~~ Have Fun Trying

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**This talk is in the spirit of Robin Hood: Everything is stolen and given to those who need it the most, Ph.D. students and junior faculty. I have stolen from many sources, including my professors at Stanford, my colleagues at NYU and CBS, and I am especially grateful to my advisors Darrell Duffie and Ken Singleton for the advice that they gave me as I prepared for the academic job market a long time ago.*

The views expressed here are those of the author and not necessarily those of AQR.

How to Succeed in Academia: Motivation

- **Ph.D. candidates usually come from a background as great students**

- **But transitioning to Ph.D. candidate or junior faculty can be challenging**
  - Student → teacher
  - Solving pre-defined problems → open-ended research
  - Lots of classmates → potentially more lonely environment

- **I will try to give some tips on how to succeed in academia**

- **I hope that at least one of the tips will help you**
  - get ideas for papers
  - write papers more easily
  - present more effectively
  - have more fun

Overview of the Talk: Three Pillars of Academia

1. **Research**
   - A. Getting ideas
   - B. Executing research
   - C. Writing for impact
   - D. Publication
   - E. Presenting research
   - F. Putting research into practice

2. **Teaching**
   - A. Classes
   - B. Advising ph.d. students, masters dissertations, bachelors dissertations, etc.

3. **Service**
   - A. Discussions at conferences
   - B. Refereeing
   - C. Not covered in these slides:
     - Other forms of external service (editor work, tenure letters, organizing conferences, board work, grants, etc.)
     - Internal service (organizing seminars, serving on committees, attending meetings, department chair, etc.)

Getting Ideas

Be Social

- **Starting out, I thought academia was all about the math**
  - "Soft values" for those who are not strong in math…? No!
  - Turns out, the social aspects are extremely important for academia too

- **I have seen people enjoy enormous benefits from being social**
  - Ideas, collaboration, avoiding conflicts, getting into special issues, etc.
  - Plus, makes academia much more fun

- **Connect to people**
  - Talk to people about your life, current research, research ideas, and things going on in the world/field
  - Colleagues, Ph.D. students, other students, practitioners, friends, …
  - Be genuinely interested in other people's life, ideas, and research

- **For example, when you have a meeting with seminar speaker**
  - Don't immediately start "presenting" your latest paper
  - First, try to make a personal connection
  - Understand the person and help the person understand you
  - Once you have made a connection
    - the conversation can turn to research of mutual interest
    - perhaps your latest paper or a new idea

Be Attuned

- **Be attuned to your own interest**
  - Research that genuinely interest you is
    - more likely to succeed and
    - never a waste of time regardless of outcome

- **Be attuned to trends in research**
  - What are exciting questions right now? At conferences, what research is being done and discussed?
  - Overturn a conventional wisdom
    - Find out what researchers agree about and show why it is wrong
  - Become a world expert on a literature
    - Then the next natural step may come to you – but don't just read, just do it (see below)
    - Try to replicate one (or several) leading papers – make you ready to take the next step

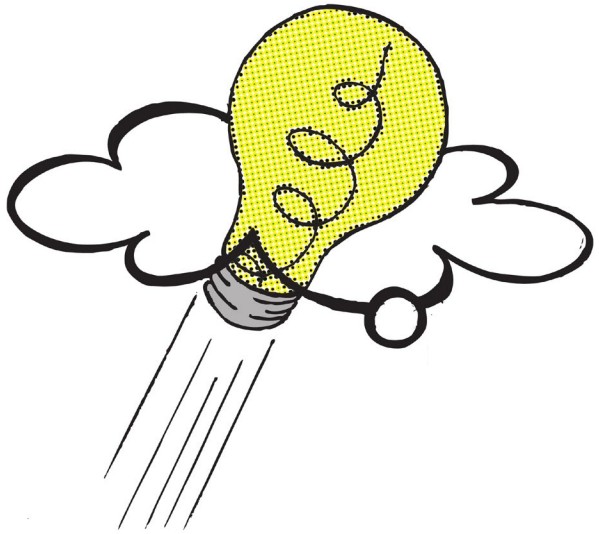
- **Be attuned to the world**
  - What new things are happening in the world? Then ask:
    - How can I model this phenomenon?
    - How can I analyze this issue empirically?
  - Be among the first researchers to address an important issue in policy or financial markets

Go for Big Ideas

- **Go for big ideas**
  - Ask what the big issue is?
  - Generalize an idea or find new applications
    - A great idea has many applications

- **It takes about the same time to write an unimportant paper as an important one**
  - "Summer's Law"
  - However, don't let this discourage your productivity – sometimes it is difficult to know what is big ex ante
  - It is often by being *active* that you stumble on big ideas
    - Especially if you always draw the big point from the little example

- **Go for useful ideas**
  - Ask yourself: "why should we care?"

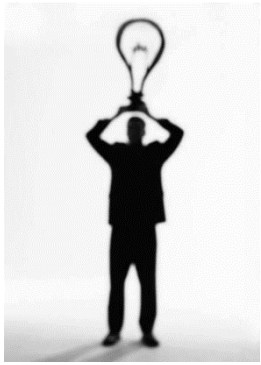


One Paper = One Idea

- **One paper = one idea**
  - Many little ideas are forgotten
  - Identify the big idea, and keep hammering on it
    - Squeeze out all of its implications – but keep the focus on one issue per paper
    - Test several implications – but, again, keep the focus

- **Go for simple ideas**
  - People are more likely to apply a simple idea
  - *Value added = output minus input*
    - Of course, you want "high output," i.e., a strong result, but also
    - "Small input," i.e., fewer assumptions, less painful math required to understand/apply the result, etc.
      (but it is good if the result is so deep that it is difficult to *derive* it)

- **What is the "figure of the paper"?**
  - Can the paper's main point be illustrated in a single figure?
  - If so, create this figure and highlight it in the paper, perhaps already in the introduction



Play with Data and Models

- **Solve models and play with data**
  - Playing with toy models and data is part of the process
    - not a waste of time even if it does not "work" or become a paper
  - Read an abstract and think about how you would execute that research
    - It's probably different from the paper and maybe much better
  - Don't just sit and wait for the idea to arrive and don't just read

- **Replicate some leading papers**
  - When you can replicate the frontier, you are ready to break new ground
  - Or, if you have difficulty replicating, can you overturn a conventional wisdom?

- **Be open minded, search for the truth**
  - Do not try to force the data to confirm your theory, surprising results are interesting
  - Don't try to force the equations to confirm your initial intuition
    - The result may be deeper if the equations surprise you
  - Abandon is an option. Find a new idea. Ingenuity and hard work are rewarded (eventually)

- There is no "right" way to get ideas
  - Solving a model and then finding a story for it is often a backwards way to do it
    - But if it works for you, then it's all about the output

Innovate One of the Three Research Building Blocks

- **Three building blocks of research:**
  I. Economic theory
  II. Empirical tests
  III. Empirical methodology

- **For each question, think about which building block(s) need innovation**
  - Provide a clever empirical test of an important theory
  - Provide an economic theory for new empirical findings
  - Provide a new empirical method for a question that has been poorly addressed using existing tools

- **The best papers often occur where theory meets empirics**
  - I.e., they relate to both even if they only contribute to one of the dimensions
  - Theorists should read empirical papers
    - To find empirical results looking for a theoretical explanation
  - Empiricists should follow new theories
    - To find new theories to test

Have a Research Agenda

- **Write a string of papers in a research area**
  - You want to be known as a *leader* in a particular area of research
  - Stand for a point of view
  - It is difficult to make a lasting impact with many dispersed papers

- **Writing the next paper is much easier when you have an agenda**
  - Easier to be attuned, easier to get the idea
  - Easier to execute, you may already have the relevant data and/or modeling tools
  - Easier to write the paper, you already know the related literature
  - Easier to avoid doing research that has already been done
  - Easier to know the good co-authors if you are already part of the gang
  - Easier to get into the right conferences if you are already part of the gang

- **Once you struck gold**
  - Keep being the leader in that area by keep finding big applications
  - Don't just re-write the same paper or get narrower and narrower

Go for Impact

- **It is more fun to do research with impact, i.e., that is useful and interesting to others**

  A. Being used by other researchers (e.g., check citations on google scholar)
  B. Being taught to students
  C. Being used by policy makers or industry practitioners

- **So try to think about how your research will be useful**

Executing Research

Executing Research

- Hey, you spend all of graduate school learning theory and empirical methods
  - I can't do justice to research execution in a few slides
  - But execute well! When you think you are done, then go the extra mile
- Give yourself deadlines
  - E.g., commit to submitting to certain conferences or giving talks
- A great paper is often one that
  - Has a result that everyone can understand and apply
  - But not everyone could have derived it (i.e., your execution is impressive)
- Co-authors are crucial to most researchers
  - Makes research more productive and efficient
  - Makes research more fun
- Collaborate and interact throughout the research process
  - Work with good co-authors who you enjoy working with
  - Talk about your research with lots of people to get feedback and ideas
    - Both other researchers and policy makers or practitioners who might face these issues
  - Have fun with it!

Writing a Research Paper

Writing a Research Paper: Structure First

- **You start with an idea**
  - I often write a title and "mock abstract" before the research is done
  - To see if the topic seems worthwhile
  - Then comes the process of exploring and executing research

- **Once the research is done: Create structure**
  - I may have 10 tables/figures (empirical paper) or 6 propositions (theoretical paper)
  - I put these into a document
  - Put in an updated title and a new abstract
  - Then section headings
    - Thinking hard about a good structure is helpful, section headings make the structure concrete

- **Now all that is left is filling in the gaps!**
  - This process removes the writer's block that occurs when staring at a blank page

Title

- **The most important part of the writing is the title**

- **What is the essence of the paper in a few words? For example:**
  - The research question (e.g., "Is there a replication crisis in finance?")
  - The "thing" that the paper should be cited for (e.g, "Time series momentum", "The limits of arbitrage")
  - The main finding (e.g., "Value and momentum everywhere")

- **Try to be short, informative, and memorable**
  - Short and informative pull in different directions – find a balance
    - A single idea is "short" in terms of its space in the brain even if it requires several words (e.g., "Is there a replication crisis in finance?" is not short in terms of word count, but feels short in that it is easy to remember)
  - Being "cute" is fine if it makes the paper memorable, but too cute is not cute
  - See if people remember your title a day after you told them

- **Many papers have titles such as "X, Y, and Z"**
  - Boring
  - Sounds like you don't know what the main result is
  - Which is more important: X, Y, or Z?
  - The simpler title "X and Y" may be OK, but it is sometimes better to say how X relates to Y

Abstract

- **The second most important part of the writing is the abstract**

- **Clearly state the main result**
  - You must identify your novel contribution (which is often hard)
  - Say it clearly
  - If you cannot say it clearly, you have not thought about it clearly (as my dad used to tell me)

- **Respect the word limit**
  - In finance and economics, abstracts must typically be less 100 words
  - Up to 120 words might be OK in a first draft
  - A long abstract signals that
    - You don't know the essence of the paper, or
    - The paper has many little points, but no one big message that will be remembered.

Introduction

- **The third most important part of the writing is the introduction**
  - Some people spend weeks on an introduction

- **The first sentence of the intro is especially important**
  - Should immediately strike the theme of the paper

- **Write using a journalistic style, not the style of a mystery novel**
  - Start with the most important part, then fill in details later
  - Don't build up to the grand finale – punchline first
  - Write as if you can lose your reader at any point – because you will lose readers at any point!

Introduction: Structure

- **One approach to a logical structure: use key sentences**
  - Each paragraph has
    - a "key sentence" that presents the central point of the paragraph
    - other sentences that support or elaborate the key sentence
    - (Sometimes the key sentence comes first, other times supporting sentences first create a transition)
  - Write down a list of key sentences
    - Each key sentences can be read by itself
    - Hence, the list of key sentences provides a structure for the whole introduction
    - Read through, edit, and reorder until you have a clear logical structure
    - Make each key sentence into a paragraph
    - Done
    - Variations: use bullet points or use key sentences for each half page, say

- **Other approaches (next slides):**
  - Structure via sparkling eyes
  - SPAR

- **There are many other approaches for creating the structure of an introduction**
  - Find one that works for you
  - The alternative is often a blank page and a stream of consciousness

Introduction: Structure via Sparkling Eyes

- Think carefully about how to present your paper in a few minutes

- Ask a colleague, practitioner, or friend if you can tell them about your new paper
  - Look at the reaction
  - The first time you do it, the listener often seems bored or confused
  - Sometimes you get surprised by how strongly the listener reacts to one part, you have something here

- Try telling your "story" in a different way to someone else
  - Repeat several times

- **Find out what makes the listener's eyes sparkle**
  - What works, creates interest, and excitement?

- **Now you know how to write your intro and present the paper**

SPAR: A Structure for the Introduction

- **Well-known method of story telling: "SPAR"**
  - *Situation*
  - *Problem*
  - *Action*
  - *Result*

- **Example of this presentation: my first slide (after the title slide)**
  - *Situation*: Ph.D. candidates usually come from a background as great students
  - *Problem*: But transitioning to Ph.D. candidate or junior faculty can be challenging
  - *Action*: I will try to give some tips
  - *Result*: Help you write a better paper, present better, have more fun

- **Typical structure of intro:**
  - First 1-2 paragraphs: situation, problem, action
  - Next paragraph: summary of results
  - Next couple of pages: explain how you get the results
  - Related literature: integrate above, but also cite toward the end
  - End: summarize how you contribute to the literature

SPAR: A Structure for the Introduction

Examples: Try to fill in the situation, problem, action, and result

- Romeo and Juliet
  - *Situation*:
  - *Problem*:
  - *Action*:
  - *Result*:

- Star Wars IV
  - *Situation*:
  - *Problem*:
  - *Action*:
  - *Result*:

SPAR: A Structure for the Introduction

Examples of SPAR

- Romeo and Juliet
  - *Situation*: Feuding families
  - *Problem*: Forbidden love
  - *Action*: Relationship
  - *Result*: Death

- Star Wars IV
  - *Situation*: A long time ago in a galaxy far, far away
  - *Problem*: Evil empire
  - *Action*: Rebel, using the force
  - *Result*: Blow up death star

SPAR: A Structure for the Introduction

- Merton (1973), Theory of rational option pricing
  - *Situation*:
  - *Problem*:
  - *Action*:
  - *Result*:

Theory of rational option pricing

Robert C. Merton

Assistant Professor of Finance
Sloan School of Management
Massachusetts Institute of Technology

The long history of the theory of option pricing began in 1900 when the French mathematician Louis Bachelier deduced an option pricing formula based on the assumption that stock prices follow a Brownian motion with zero drift. Since that time, numerous researchers have contributed to the theory. The present paper begins by deducing a set of restrictions on option pricing formulas from the assumption that investors prefer more to less. These restrictions are necessary conditions for a formula to be consistent with a rational pricing theory. Attention is given to the problems created when dividends are paid on the underlying common stock and when the terms of the option contract can be changed explicitly by a change in exercise price or implicitly by a shift in the investment or capital structure policy of the firm. Since the deduced restrictions are not sufficient to uniquely determine an option pricing formula, additional assumptions are introduced to examine and extend the seminal Black-Scholes theory of option pricing. Explicit formulas for pricing both call and put options as well as for warrants and the new "down-and-out" option are derived. The effects of dividends and call provisions on the warrant price are examined. The possibilities for further extension of the theory to the pricing of corporate liabilities are discussed.

1. Introduction

■ The theory of warrant and option pricing has been studied extensively in both the academic and trade literature.[1] The approaches taken range from sophisticated general equilibrium models to ad hoc statistical fits. Because options are specialized and relatively unimportant financial securities, the amount of time and space devoted to the development of a pricing theory might be questioned. One justification is that, since the option is a particularly simple type of contingent-claim asset, a theory of option pricing may lead to a general theory of contingent-claims pricing. Some have argued that all such securities can be expressed as combinations of basic option contracts, and, as such, a theory of option pricing constitutes a

Robert C. Merton received the B.S. in engineering mathematics from Columbia University's School of Engineering and Applied Science (1966), the M.S. in applied mathematics from the California Institute of Technology (1967), and the Ph.D. from the Massachusetts Institute of Technology (1970). Currently he is Assistant Professor of Finance at M.I.T., where he is conducting research in capital theory under uncertainty.

The paper is a substantial revision of sections of Merton [34] and [29]. I am particularly grateful to Myron Scholes for reading an earlier draft and for his comments. I have benefited from discussion with P. A. Samuelson and F. Black. I thank Robert K. Merton for editorial assistance. Any errors remaining are mine. Aid from the National Science Foundation is gratefully acknowledged.

[1] See the bibliography for a substantial, but partial, listing of papers.

SPAR: A Structure for the Introduction

- Merton (1973), Theory of rational option pricing
  - *Situation*: Options studied since Bachelier 1900
  - *Problem*: Lack of unified rational theory
  - *Action*: Derive implications of no arbitrage
  - *Result*: Method for pricing any derivative

Theory of rational option pricing

Robert C. Merton

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  - *Problem*:
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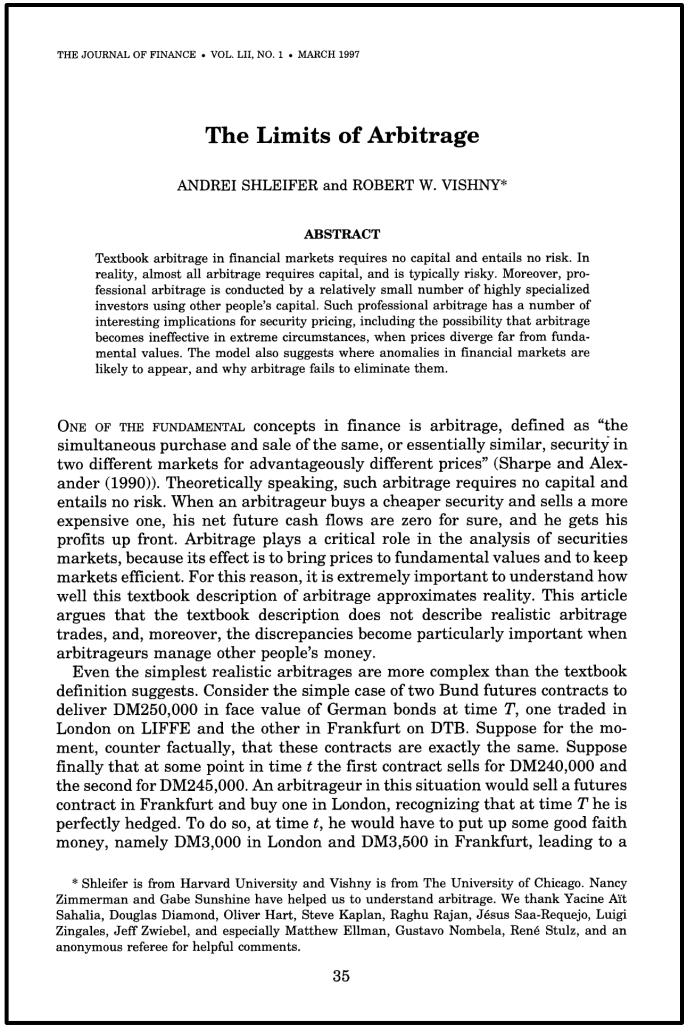

THE JOURNAL OF FINANCE • VOL. LII, NO. 1 • MARCH 1997

The Limits of Arbitrage

ANDREI SHLEIFER and ROBERT W. VISHNY*

ABSTRACT

Textbook arbitrage in financial markets requires no capital and entails no risk. In reality, almost all arbitrage requires capital, and is typically risky. Moreover, professional arbitrage is conducted by a relatively small number of highly specialized investors using other people's capital. Such professional arbitrage has a number of interesting implications for security pricing, including the possibility that arbitrage becomes ineffective in extreme circumstances, when prices diverge far from fundamental values. The model also suggests where anomalies in financial markets are likely to appear, and why arbitrage fails to eliminate them.

ONE OF THE FUNDAMENTAL concepts in finance is arbitrage, defined as "the simultaneous purchase and sale of the same, or essentially similar, security in two different markets for advantageously different prices" (Sharpe and Alexander (1990)). Theoretically speaking, such arbitrage requires no capital and entails no risk. When an arbitrageur buys a cheaper security and sells a more expensive one, his net future cash flows are zero for sure, and he gets his profits up front. Arbitrage plays a critical role in the analysis of securities markets, because its effect is to bring prices to fundamental values and to keep markets efficient. For this reason, it is extremely important to understand how well this textbook description of arbitrage approximates reality. This article argues that the textbook description does not describe realistic arbitrage trades, and, moreover, the discrepancies become particularly important when arbitrageurs manage other people's money.

Even the simplest realistic arbitrages are more complex than the textbook definition suggests. Consider the simple case of two Bund futures contracts to deliver DM250,000 in face value of German bonds at time T, one traded in London on LIFFE and the other in Frankfurt on DTB. Suppose for the moment, counter factually, that these contracts are exactly the same. Suppose finally that at some point in time t the first contract sells for DM240,000 and the second for DM245,000. An arbitrageur in this situation would sell a futures contract in Frankfurt and buy one in London, recognizing that at time T he is perfectly hedged. To do so, at time t, he would have to put up some good faith money, namely DM3,000 in London and DM3,500 in Frankfurt, leading to a

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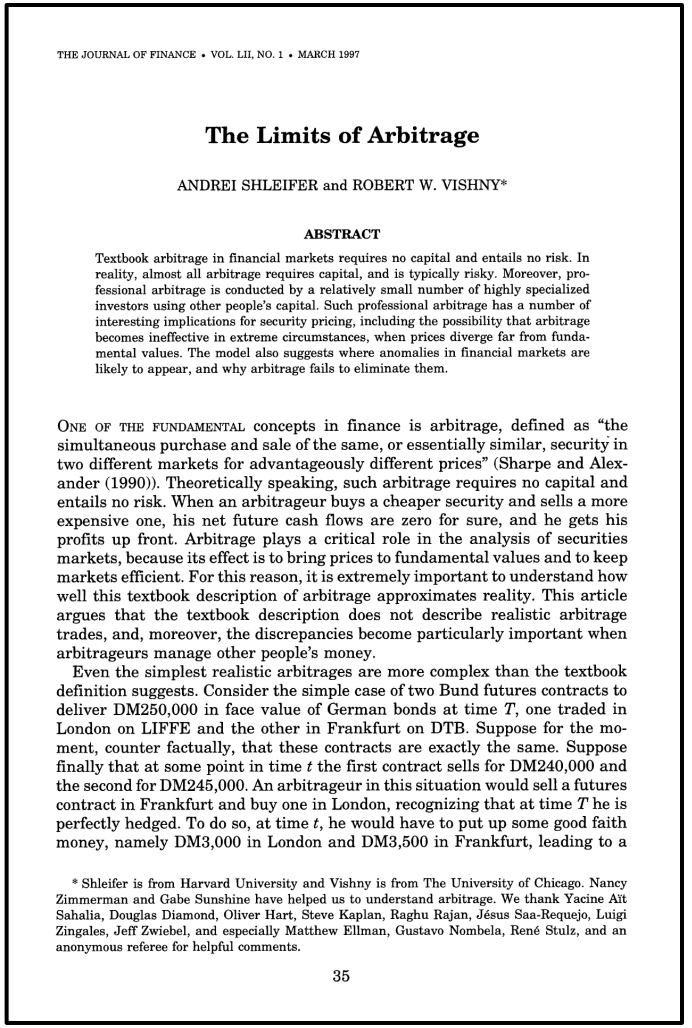
SPAR: A Structure for the Introduction

- Shleifer and Vishny (1997), The limits of arbitrage
  - *Situation*: Arbitrage is a fundamental concept in finance
  - *Problem*: Real-world arbitrage trades are risky
  - *Action*: Analyze "performance based" arbitrage
  - *Result*: Market not efficient + specific predictions



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SPAR: A Structure for the Introduction

- Pedersen, Fitzgibbons, Pomorski (2021), Responsible investing: The ESG-efficient frontier
  - *Situation*:
  - *Problem*:
  - *Action*:
  - *Result*:

- Pedersen (2021), Game on: social networks and markets
  - *Situation*:
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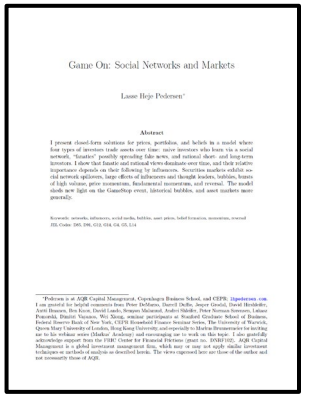

- Jensen, Kelly, Pedersen (2021), Is there a replication crisis in finance?
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  - *Problem*:
  - *Action*:
  - *Result*:

SPAR: A Structure for the Introduction

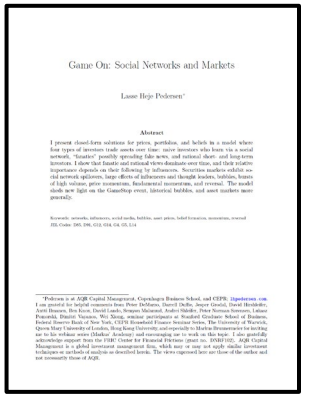
- Pedersen, Fitzgibbons, Pomorski (2021), Responsible investing: The ESG-efficient frontier
  - *Situation*: Trillions of dollars seek to incorporate ESG considerations
  - *Problem*: Little guidance on how to do it and whether it improves/hurts returns
  - *Action*: Analyze optimal ESG investing and its costs and benefits
  - *Result*: ESG efficient frontier, ESG-adjusted CAPM


Journal of Financial Economics

Responsible investing: The ESG-efficient frontier

Lasse Heje Pedersen, Shaun Fitzgibbons, Lukasz Pomorski

- Pedersen (2021), Game on: social networks and markets
  - *Situation*: Traders have talked since 17th century; now via social media
  - *Problem*: …but how does communication affect markets?
  - *Action*: Analyze asset prices when traders learn via network
  - *Result*: Influencers, thought leaders, momentum, value, bubbles, turnover, volatility


Game On: Social Networks and Markets

Lasse Heje Pedersen

- Jensen, Kelly, Pedersen (2021), Is there a replication crisis in finance?
  - *Situation*: Replication crises in many fields of research
  - *Problem*: …now also finance
  - *Action*: Analyze internal and external validity in unified factor model
  - *Result*: Replication rates, effect of publication bias → no crisis


Is There a Replication Crisis in Finance?

Theis Ingerslev Jensen, Bryan Kelly, and Lasse Heje Pedersen

Writing the Rest: Make the Paper Easy to Skim

- **Make skimming easy and effective**
  - Readers are busy, so readers skim → help the reader

- **Let headings say what the main results are**
  - The skimming reader learns a lot just from the section headings

- **For theoretical papers: help skimmers find results in understandable propositions**
  - Put main results into clear propositions
  - Write propositions so they can be understood without reading anything else, if possible
  - Otherwise include helpful clarifications just before the proposition
  - If proposition contains symbols, say in words what they mean
    - "where the risk premium, λ, …"

- **For empirical papers: help skimmers find results in tables and figures**
  - The caption title of figures and tables should say the main point
  - The caption notes should be self-contained enough that the skimming reader can
    - understand what the finding is
    - quickly read it and get it
  - Do not overdo the caption – then the skimming becomes skipping
    - The paper should be replicable for someone reading it, not someone just skimming captions

Be Clear

- **Clarity is necessary for impact**
  - If many people can understand your research
    - many people can use it, cite it, teach it → impact
- **Describing a clear example with everyday words is powerful**
  - Especially if it creates an image in the reader's mind
- **Being abstract and using specialized terms is less impactful**
  - Many readers will be confused, others will forget
  - It's not about proving that you remember what you learned in grad school
  - It's about explaining what is new and exciting about the paper
- **Don't use big words as a "security blanket"**
  - Many researchers are afraid that other people will think their research is trivial
  - Dressing the research up in fancy words lowers this risk
  - But, unnecessary complexity means that
    - you and your readers lose track of the contribution

Be Concrete and Relevant

- **Be concrete**
  - Don't say "I derive important economic implications"
    - Describe a *specific* implication
    - Describing a specific implication of new research *is* important, even if you don't say so

- **Explain how the paper is relevant**
  - How is the paper useful?
  - In which situations might we act differently because of the paper?
  - How does the paper change our thinking (and complement the literature)?
  - What is the magnitude of the effect?
    - Find a concrete way to illustrate the magnitude of the effect

- **Give examples of how the main result can be used**

First Say What You Do, Later Explain and Criticize

- **Don't have long build-ups**
  - Before presenting a regression, many papers first come with all kinds of
    - explanations, caveats, potential criticisms, and ways the analysis addresses criticism
  - This writing style often frustrates the reader
    - Readers don't want to hear the explanation of a regression before they know what the regression is
    - Readers don't want to hear a potential criticism of something they don't yet understand
  - As an author, you do not need to prove that you are 3 steps ahead

- **The reader first want to know, at the most basic level,**
  - what analysis do you perform and what do you find?

- **Then later you can explain**
  - what the result means
  - why certain specification choses are useful
  - potential criticisms, and how the analysis address these
  - E.g., "I regress X on Y, controlling for Z. The regression coefficient is 3.7, meaning that … Controlling for Z is important because …"

Write a Research Paper, Not a Tabloid

- **A research paper gets published because of**
  - an empirical fact, which is statistically significant (e.g., mention the *p*-value) or precisely estimated (e.g., mention the confidence interval), or
  - a theoretical result (provide a proof)

- **Writing about the sign of an insignificant regression coefficient does not make sense**
  - Newspapers often write things like "X is higher this year than the average over the last five years, Y"
    - but researchers should not write such a statement unless they show a significant difference between X and Y

- **Don't use adjectives like "very"**
  - Saying that a coefficient is "very big" has no scientific meaning
  - Say that it is statistically significant and that the *t*-statistic is 5
  - Say that it is 10 times bigger than something else
  - Explain what the magnitude means in practical terms

- **Use a meaningful number of significant digits (e.g., in the tables)**
  - 50.12345 with a standard error of 3.0 means that the confidence interval is [44.12345, 56.12345]
  - With that level of precision, what do any of the digits after the comma really mean here?
  - Use two or three significant digits here (i.e., write 50 or 50.1)
    - Anything more creates a false sense of precision and makes the paper more difficult to read

General Writing Tips

- **Always present tense**
  - "I do X," not "I will do X"
  - "Duffie and Singleton (1999) find that …"
  - Of course, every rule has exceptions, but students tend to find too many exceptions to this one

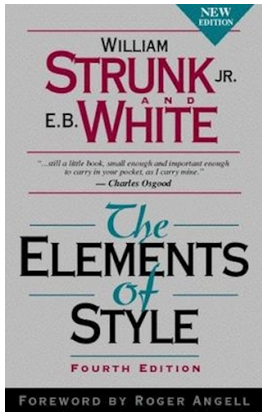
- **Write with confidence, but don't overstate**
  - Confidence: state conclusions plainly, avoiding too much hedging
  - Overstating (e.g., exaggerating importance of results) or other "red flags" turn the reader against you

- **Cut deadwood and boilerplate**
  - Every word should tell
    - Cut unnecessary words
  - Boilerplate phrases like "The rest of paper is structured as follows" put the reader to sleep
    - If the reader wants to know, she will skim the section headings

General Writing Tips: Don't Listen to Me

- **Always follow "this" with a noun that tells the reader what "this" you are referring to**
  - E.g., "This shows that …" should be "This regression shows that"
  - Sometimes a "naked this" is confusing, but other times it is not
    - Either way, a "naked this" is considered bad form in English
    - Why? Don't ask a Dane
      - in Danish a "naked this" seems perfectly acceptable when there is no risk of confusion

- **Get writing tips from the greats, not just from me**
  - The previous tip shows that you should seek general writing tips from greater writers
  - E.g., the classic by Strunk and White, "The Elements of Style"
  - There are many excellent books and texts on writing and academic writing

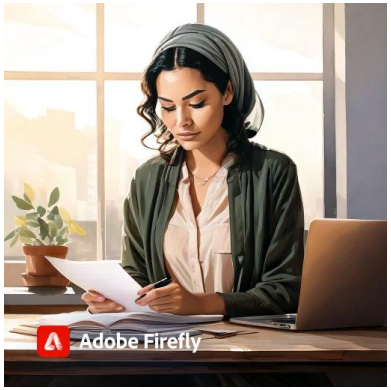


Writing is Rewriting

- **Just write**
  - Do not feel a pressure to get it right the first time (can lead to writer's block)
  - Having written something usually makes rewriting much easer than starting from scratch

- **Write a lot**
  - It clarifies your own thoughts even if you don't use all of it
  - Don't spam the world with writing you don't even care about yourself
    - those pieces were about the process and the practice

- **Consider writing a "mock abstract" when you are thinking about ideas**
  - See if the end result of the potential research sounds interesting (as mentioned earlier)



Let Your Subconsciousness Do the Writing

- **When you have thought about your topic and structure, writing is much easier**
- **Sometimes you get into a "flow," where the writing comes almost without effort**
  - When you catch the flow, hold on, enjoy, and try to postpone other plans
- **Learn to navigate being outside the blissful flow state**
  - Flow happens rarely, perhaps once or a few times a year
- **For example, near the end of a work day, decide what you will write tomorrow**
  - E.g., I will write Section 3 tomorrow. The structure of this section is given by these bullet points, and the first key sentences are X, Y, Z
  - When you made your plan, commit to relaxing the rest of the day
  - Have fun
  - Next morning, you will often find that the writing comes more easily
  - Repeat the process by the end of the next day
  - Soon enough, you have written a first draft

Get Feedback on Your Writing

- **Getting feedback is valuable, but difficult (people are busy)**

- **Increase your chance of feedback by lowering the cost of your reader**
  - Present your finding verbally
  - Just ask for feedback on a specific part such as
    - the title
    - the abstract
    - the first page of the introduction
    - the whole introduction
  - To make this focused request credible, perhaps only send a specific part to your reader
  - Or send the whole paper at the right time when feedback is especially valuable
    - so the reader does not need to read the whole paper multiple times

- **An exercise:**
  - Ask a colleague to
    - read a part of your paper out loud (e.g., the abstract)
    - then talk about whatever comes to mind
      - whatever research ideas come to mind, whether an argument seemed confusing, whether a result seemed surprising, and so on (not spelling errors or suggested edits – just be a reader, not an evaluator)
    - the author stays silent and neutral (with a poker face)
  - That's it. You get a valuable look into the mind of a reader and draw your own conclusions
    - Where does a reader stumble over the words? What is clear and what isn't? What thoughts are sparked?

Publication

Publication: Submit your Paper and Go for Top Journals

- **Most important step:**
  - Submit your paper!
  - Being rejected is *much better* than not submitting
    - Because a rejection comes with information from editors and referees
    - Helps you revise the paper
    - If a paper keeps getting rejected, move to lower-tier journals
      - Getting your paper published gives closure, helps you focus on new projects
      - The paper can have impact regardless of journal if important

- **Go for top journals**
  - Most PhD students know what they are in your field
  - If you have any shred of doubt, find out now

Publication: Reading a Referee Report

- **Acceptance**
  - Face it: acceptance will not happen in the first round
  - Happens so gradually that you never know when to celebrate
    - Celebrate when you are happy with your own paper and submit it for the first time

- **Revise and resubmit**
  - Expect the letter to sound negative
  - R&R is great news regardless – go to the next page for more info

- **Rejection**
  - Try to learn as much as you can from the referee report(s) and letter from the editor, however upsetting they may be
  - What can you do to make the paper better?
  - How can you re-write the paper so they will not get so confused?
  - Which result is both significant and new relative to the literature?
  - How can you make it clear that your result is useful?
  - Try your new line of argument on several of your colleagues
    - Can you explain the main result in one sentence?
    - Does your colleague get it right away?
    - Is your colleague persuaded?
    - Does your colleague remember it the next day?

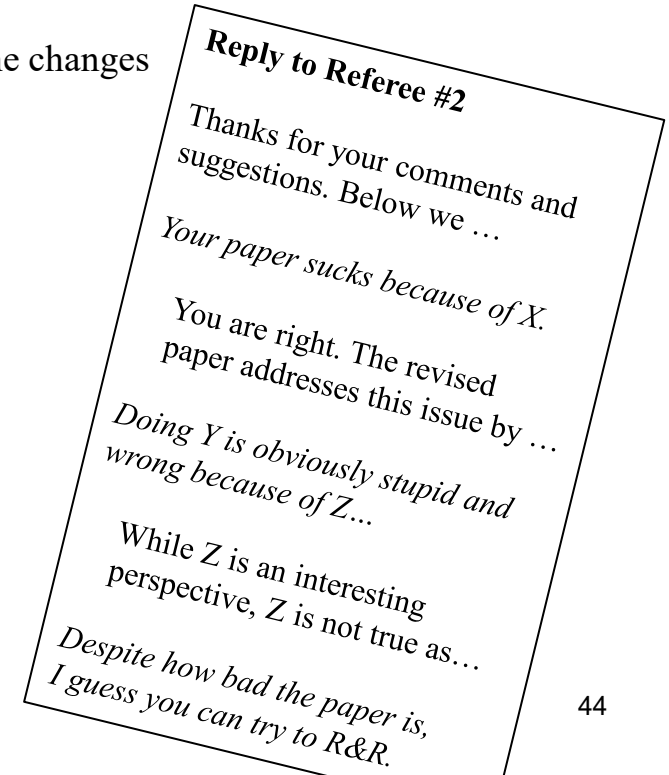
Publication: Replying to a Referee Report

- **Once you get an R&R, you have odds in your favor**
  - You can use a ton of energy to address all of the referee's comments
  - The referee only has a few hours to "fight" you

- **Structure of a reply**
  - Thank the referee for the comments and suggestions and explain the structure of the reply
  - Make sure to reply to *every* comment
    - Repeat the referee's comments (e.g., in italics) and then say what you did about it
  - Actually implement what you claim to do in the paper
  - Make it easy for the referee to check how you implemented the changes
    - E.g. by referring to page numbers in the revised paper
  - Not every part of the reply needs to go into the paper
    - You can have tables and figures in the reply

- Try to view the referee's suggestions positively

- Know that revising a paper can be a huge amount of work



Publication: Myths about Publication

- **"I am just so unlucky"**
  - Luck does play a role
  - If you get unlucky at one top journal, you still have others
  - If you get rejected at all of the top journals with all of your papers, maybe it is not just bad luck

- **"The referee does not understand anything and is a jerk"**
  - Maybe, but he/she was nice enough to take the time to look at your paper
  - What did you do to confuse the referee?

- **"If you are not at a top school, you can't publish in the top journals"**
  - Not true, check any issue of a top journal
  - Referees and editors may subconsciously use statistical discrimination
    - If an author wrote great papers in the past, this track record sends a signal
    - If a paper has been successful presented at seminars and conferences, this vetting sends a signal
    - You must try to build a reputation
    - However, publication in a top journal is a tough process for anyone
  - If a paper with an interesting idea gets rejected, it is often because it is so badly written that the editor/referee fear that its execution will be sub-standard even after several costly rounds of revision

Presenting a Research Paper

Presenting Research: Present as Often as Possible

- **Presenting research is important!**
- **Marketing works, also in research**
- **Chance to**
  - Clarify your own thoughts
  - Get input, possibly new ideas to make the paper better and for future papers
  - Meet new people
  - Build a reputation

Presenting Research: Structure of a Research Seminar

- **Motivation: What is the research question, why should we care, and what you do**
- **Main results**
  - Make sure it is perfectly clear what the marginal contribution is
  - Give intuition and rules of thumb about how to apply the results
  - Give real-world examples and make clear why research is relevant
  - SPAR again: "motivation"+"main results" = "situation-problem-action-result"
- **Related literature**
  - Can be integrated in the above or separate
  - Should be brief – and all about your contribution and how it relates to the literature
- **Overview of the rest of the talk**
- **Main content**
  - When a model or empirical method is first presented, you must carefully explain every symbol
  - Later in talk, after you have derived the main results, people are tired of math. At that point show illustrative examples, graphs, intuition, and other results that are easy to digest. Show the audience that the model they have just learned about is useful
  - Give intuition for your results
- **Conclusion**

- **For a talk at conference: You have less time, so**
  - you may need to skip the overview of "main results" and dive faster into the "main content"

Presenting Research: Make Good Slides

- **Clear slides**
  - Make simple and clear slides, which are easy to read
  - Reduce the wording and number of symbols to a minimum
    - *Unlike* these slides, which are also written as a reference (i.e., do as I say, not as I do)
  - Have titles that clearly describe the main point of each slide

- **Use pictures/graphs instead of words/math whenever possible (again, unlike these slides)**

- **Number of slides:**
  - For a talk of an hour and a half, prepare around 22-28 slides
  - Have some extra slides in case you have more time, but
    - Never give the impression that what you are presenting is a time filler
    - Try to avoid having to take (too many) real-time decisions concerning what to present.
  - Stopping a little early is fine, but try not to be more than 10 minutes early
  - Never go over time

Presenting Research: Be Clear and Enthusiastic

- **The two most important things in a talk are**

  1. That you are articulate and clear so people get everything

  2. That you show your enthusiasm
     - Give your energy!
     - Your energy and enthusiasm get the audience fired up
     - If you are not enthusiastic, how can you expect anyone else to be?

- **Give "life" to the model and the symbols**
  - Create *images* in people's minds
  - Get people to think about the key points and the model and help them get the intuition

- **Presenting graphs**
  - Before you show a graph, briefly tell the audience the reason for preparing the graph
  - When you show a graph, first go through what are on the axes – otherwise the graph has no meaning
  - Once it is clear what the graph shows, then draw a conclusion

Presenting Research: Make Transitions and References

➢ Transitions

- Make transitions between slides — some short, others longer.
- Make the transition before you put on the next slide — that way the focus is on you.
- Pause
- Look up and engage the audience
- Say when one subject is done and you are moving to the next subject.
  - For example, say: "I have shown you how the model works. Now we are going to solve the equilibrium."
- Guide the audience so the presentation is a smooth walk

➢ References

- Make "back references" and "forward references"
  - For example, "I told you that in the real-world investors face a margin requirement. The way I capture that in the model is..."
  - As another example, see how my discussion of SPAR referred back to the first slide (and I just did it again)
- Summarize what you have done, keep reiterating the main contribution

audience presenter

Presenting Research: Answer Questions Directly

- **First a short direct answer, then potentially add explanation**
  - First say the answer in one short sentence (e.g., in one word: "yes" or "no")
  - Then expand on the answer if necessary
  - No "shaggy dog stories"

- **Answer questions clearly and convincingly**
  - Taking the time to give a single convincing answer is much better than
    - A rushed answer, which ends up being followed by a long, confused debate
  - Slowing down is good
    - You have thought much more about the issues. Pausing makes you more thoughtful
  - Answering before the person finished his question is rude (even if you can guess the question)
    - Also, you seem more profound if you pretend that it is the first time you heard the question

- **Answer questions in an inclusive way**
  - Be willing to talk about the intuition arising from your results
    - even if you have to go outside the model

Presenting Research: Draw the Right Questions

- ***Draw* the right questions**
  - Draw questions about the marginal contribution
  - Perhaps even invite questions, when they are likely to concern your contribution
  - Arguing about your contribution, convincing the audience about it, is a good way to spend time.

- **Do not draw questions that are not about the contribution**
  - If you keep getting irrelevant questions, think about what *you* are doing wrong
    - Are you focusing on your contribution?
    - Did you explain the contribution well?
    - Are you making controversial statements unrelated to your contribution?
  - E.g., if you find yourself arguing about what some old paper really did
    - then you are doing something wrong

- **You can defer some questions for discussion after the seminar**
  - But this situation is not ideal

Presenting Research: Let Questions Help You

- **Remember that people who ask questions *help* you**
  - They give you much needed feedback
  - They make the seminar more lively
  - All this is true even if it sometimes does not seem so in the heat of the moment
  - Be happy (really!) when people ask questions and use them positively

- **Understand *why* people ask questions**
  - Be respectful of the people who ask questions
  - If someone fears losing face because of your reply to a question
    - He may keep talking to convince his colleagues that he isn't wrong/stupid, wasting your time
  - Everyone wins if you can answer in such a way that
    - The person who asks the question looks good while
    - The audience understands that you are right and the contribution stands

- **To avoid follow-up questions if someone is getting the seminar off track**
  - End the question by looking at another part of the audience and
  - Possibly take another question immediately

Presenting Research: Prepare Your Talk

- **For every slide:**
  - Be clear in your mind about what the key points are
  - Know how you will transition to the next slide

- **Practice especially carefully the introduction**
  - the motivation, contribution, and related literature
  - Important to get a good start

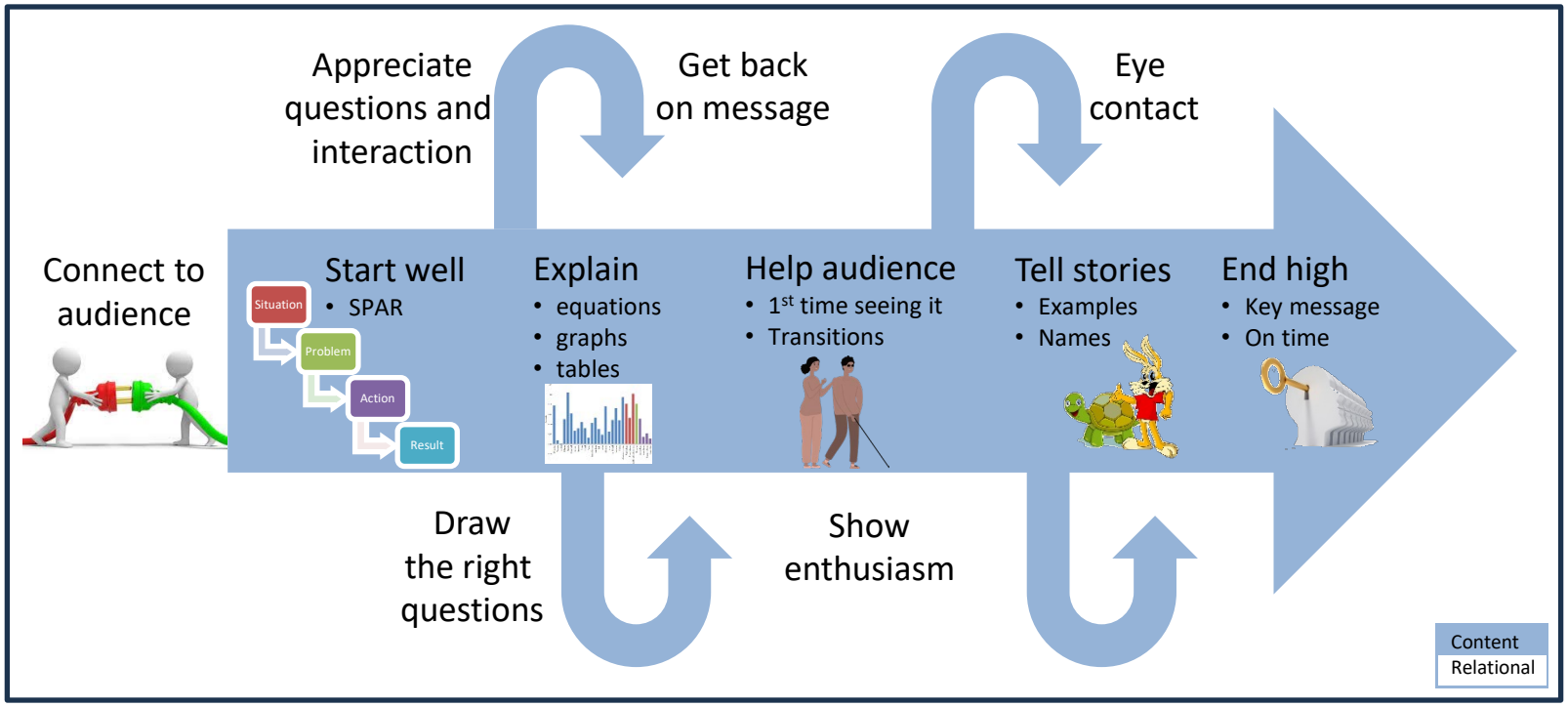
- **If you practice a presentation for a one-and-a-half-hour seminar**
  - It should take about 45 minutes, uninterrupted
    - If it takes much shorter time, you are not explaining enough, and not giving enough life and color
    - If it takes much longer time, you have too much material
  - Some people know their (job) talk by heart, word for word
    - I don't. I prefer to speak freely
    - This choice is a personal matter, you need to be excited and confident when you present

- **Be ready to explain using a board or a blank slide**

Presentation Summary and Cheat Sheet

- The next slide contains a summary of many of the presentation tricks
- You can use this summary before and after your presentations
- Before: preparing a talk:
  - Make sure that you prepare each part of the summary
- After: self-evaluation of talk
  - Think about how each part went
    - E.g., did you draw the right questions? Respond positively to questions?
  - What worked well?
  - What can be improved?

Pedersen's Presentation Playbook



Putting Research into Practice

Putting Research Into Practice

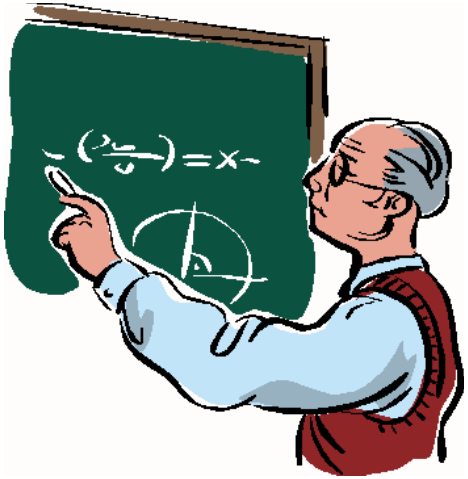
- **Early in your career, consulting and other outside activities is often too distracting**
  - Don't cut down a young tree to get a little wood
  - Wait until it has grown large, then you can just pick the fruits

- **Once you have made a research impact, putting research into practice can be rewarding**
  - Working with practitioners and policy makers can give lots of research ideas
    - Practitioners have questions but no time to dig for a deep answer
    - Academics want to dig for answers but often search for questions
  - Requires a transition to a different thought process
  - Remember to make appropriate disclosures in your papers

- **Go for projects that are research oriented**
  - Gives you new knowledge
  - Allows you to write papers
  - Possibly access to unique data

Teaching

Teaching



- **Teach well**
  - Teaching is the basis of educational institutions
  - Students deserve a good education
  - It is a part of the job throughout your academic career so have fun with it!
- **Teaching can be rewarding**
  - makes you think again about the fundamental ideas
  - chance to directly help other people
- **You need to be efficient with your teaching to excel in research**
  - Invest in getting it right early on
  - Efficient does not mean sloppy
    - E.g., a disastrous teaching semester that you need to later correct is not efficient, can create a vicious cycle
- **The notes on presenting research also apply to teaching, but there is much more**
  - Motivate the students by
    - Showing that you care
    - Giving real-world examples
  - I will not attempt to say how to do it here
    - Ask your senior colleagues how to become a great teacher
    - Get their notes/ slides

Writing a Referee Report

Service: Writing a Referee Report

- **Typical structure:**
  - Some referees start with a brief summary of the paper
    - mainly relevant if you want to refer back to this summary in your later points
  - Many referees have an overall assessment in the beginning (or in the end)
    - Are the main results important and new?
    - Usually the actual recommendation regarding accept/R&R/reject is only written in the letter to the editor
  - The ~3 main comments: the main problems and what is needed to make the paper publishable?
  - Additional comments: List of other (optional) specific comments or suggestions
- **If you recommend rejection**
  - Point out clear reasons why the paper is not publishable
  - In principle a sufficient reason is enough for rejection
  - Try to give encouragement (remember how you feel when you read a report)
  - Try to give ideas for how the paper could be made better
  - Consider recommending an alternative journal where the paper would fit better (to editor or in report)
- **If you recommend revision**
  - Try to make all your comments in the first round
    - What does it take for the paper to be publishable?
    - Are you convinced about the main results and, if not, what can the authors do to convince you?
  - Later rounds should preferably only be follow-up on these initial points
- **See also**
  - Berk, Harvey, Hirshleifer (2017), "How to Write an Effective Referee Report and Improve the Scientific Review Process," https://www.aeaweb.org/articles?id=10.1257%2Fjep.31.1.231

Discussion at a Conference

Service: Discussing a Paper at a Conference

- **If you are asked to give a discussion then either**
  - Do it right or
  - Don't do it

- **A discussion is *not* a referee report spoken out loud**
  - Don't talk about the typo on page 17 (you can tell the author separately)
  - A discussion is mainly *a service to the audience*, not primarily to the author, and not an evaluation

- **Goal of discussion:**
  - To illuminate the audience
  - A chance to show a lot of people how smart you are

Discussing a Paper at a Conference: Structure

- **Possibly review the paper (briefly – reviewing is not the main point):**
  - Find a new way to explain the paper that makes everything much clearer than the authors did
  - Make clear what the main results are (to "tee up" your comments of these points)
  - Only review the paper if it adds value to audience – don't just repeat what the author said

- **Make comments, especially about the main results**
  - Are the results right? Robust? Driven by reasonable assumptions? Quantitatively important? Related to other papers?
  - What are the implications for the real world? How do we act differently because of the paper?
  - Highlight strengths and suggest improvements for weaknesses

- **Try to add some value**
  - Solve a different version of the model
    - See if the results can be derived more simply
    - Can the model be extended in an interesting way?
    - Do opposite results obtain under different assumptions and, if so, which are more relevant?
  - Replicate the empirical work and make some additional analysis
    - E.g., use a different dataset or method or test other predictions of the theory
  - Compare to different theory or to other empirical results
    - Do the paper's predictions hold up in other places than the authors originally looked?

Discussing a Paper at a Conference: Be Fair

- **How tough? What not to do:**
  - Don't make any personal attacks
  - Don't make unsubstantiated criticism (e.g., "why would you do that?" – say what the problem is)
  - Don't be naively positive if the paper does not deserve it, the audience wants to learn something

- **How tough? What to do:**
  - Be fair and objective
  - As long as you talk about the issues, everything is fair game
  - If you think you found a clear error, consider telling the authors in advance. This notice gives
    - the author a chance to respond and possibly correct it
    - yourself a chance to avoid making a false statement (if it turns out that it is not an error)
    - the audience a chance to learn the final truth
  - Try to also appreciate what is good about the paper
  - Give ideas for how it can be better

- **Some discussants talk extensively about their own work**
  - Using your own papers a bit is fine if
    - they are particularly relevant for this paper and bring a fresh angle
  - But
    - too much self promotion is not cool
    - don't be self-serving if your work is not relevant for the paper that you are discussing

Responding to a Discussion of Your Paper at a Conference

- **Do not respond point-by-point**
  - Authors often list all of the discussant's points and then respond to each of them
  - E.g., they say: "Your 1st comment X, I disagree because…; your 2nd point, I can accommodate by doing bla; your 3rd point bla bla, …, your last point bla bla bla."
  - Do not respond in that way
    - The audience does not listen to such a long list of minor, rushed, and detailed comments
    - Boring. Plus, you seem defensive and nitpicking
    - What do you gain when no one listens?
    - Leaves no time for real back-and-forth that engages the audience
    - Since the discussion is not a referee report, you should not respond as in a reply to a referee report

- **A better way to respond:**
  - Thank the discussant and say that you will use these comments to improve the paper
    - The audience knows that you can do it, they know that not all discussant comments are right, and, importantly, most comments do not threaten your main contribution anyway
  - If the discussant made a comment that challenges your main contribution, you should respond
    - Being clear, respectful, and focused on this single issue is persuasive
  - If the discussant did not make a comment that challenges your main contribution
    - Consider leaving all the remaining time for further discussion with the audience, or
    - Say something interesting related to the discussion that emphasizes your main contribution
  - Leave the audience with an understanding that
    - your main contribution stands, you are smart, and you are receptive of input

Conclusion

Conclusion: Understand How an Academic is Valued

- **Like a professional athlete, most of your accomplishments are measured on your CV:**
  1. Publications, citations, papers used in classes, and research presentations
  2. Teaching evaluations
  3. List of service tasks

- **The market value of an academic = existing brand value + expected future productivity**

- **Invest in your human capital:**
  - A. Invest in your productivity
    - Keep learning
  - B. Invest in your brand, i.e., reputation
    - Reputation depends on the measurable items above, especially research impact, but also on other things:
      - Is the person a good colleague?
      - Is the person smart as inferred from his presentations, discussions, referee reports, etc.?
      - Is the person helpful?
      - Other things people learn from personal experience, etc.
    - The overall reputation underlies tenure letters and tenure decisions

Conclusion: Make a Real Difference

Don't view academia as merely a game – trying to make a *real* difference is more engaging

1. **Research can change the world**
   - Change how people invest, save, and retire, and the way financial markets work
   - Change monetary policy and possibly financial stability
   - Change macroeconomic policy and possibly economic growth

2. **Teaching can make a real difference**
   - Affects students' lives

3. **Service keeps the academic system going**
   - You can inspire others

Conclusion: Be Curious, Social, and Have Fun

- **If your research reflects what you truly think is important and interesting**
  - It has the best chance of success, especially in the long run
  - You will accomplish more when you are passionate
  - Others will sense your passion (or cynicism)
  - Even if you don't have huge impact, you learned something interesting to you and had fun

- **If you remain an academic, you will be in this "school yard" the rest of your life**
  - Be social
  - Be generous to others, especially your co-authors
  - Do the right thing

- **Remember that being a professor is a great job**
  - Have fun