BUFN 726—Institutional Asset Management
Tentative Syllabus—Spring 2024—Term C

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Note: This is a tentative syllabus. I may make some changes to topics, readings, and questions, especially after week 3. If I do make changes, students are welcome to submit assignments based on this syllabus instead of the changed syllabus!

Class Meetings

This course, Institutional Asset Management, BUFN 726, has two sections. Both sections have 14 class meetings which are each approximately two hours long. Section BUFN 726–0502 meets in Van Munching Hall 2505 from 12:00 noon to 1:50 p.m. every Monday and Wednesday from Wednesday, January 24, 2024, through Monday, March 11, 2024. Section BUFN 726–0501 meets in Van Munching Hall 1333 from 2:00 p.m. to 3:50 p.m. every Monday and Wednesday from Wednesday, January 24, 2024, through Monday, March 11, 2024. Both sections have a combined final exam to be taken at the same time. The final exam has not yet been scheduled.

My office hours are immediately after the second class, Mondays and Wednesdays from 4:00 p.m. to 5:00 p.m. or by appointment.

The TA for this course is Chenyang Wang (cywang@umd.edu). His hours have not been scheduled yet.

Assigned question-and-answer write-ups are due at 12:00 p.m. noon on the day the class meets.

There are no writeups due for Week 1A. The assignment for Week 1B is due before 12:00 p.m. noon Monday, January 29, 2024.

While students are encouraged to discuss assignments with other students taking the class, assignments should be written up individually by each student using their own words, consistent with the honor code as discussed below.

Course Description

This course uses a mixture of cases, lectures, and class discussion to examine how money is managed by organizations such as university endowments, pension funds, mutual funds, hedge funds, private equity funds, and banks. The course involves a mixture of finance and economics. The course emphasizes the incentives professional money managers face within the context of the organizational structure in which they operate. Particular attention is paid to compensation structures and monitoring mechanisms.

The emphasis on institutions and incentives makes this course different from an empirical asset pricing course which studies the extent to which returns can be predicted. Rather than examining whether markets are efficient, this course examines how beliefs of investors about market efficiency affect the ways in which money is managed. The course will touch on numerous public policy issues, many of which are politically controversial and most of which are likely to continue to be important for years to come. A goal of the course is to provide students with a framework within which these public policy issues can be addressed in a useful manner.

The course will use a combination of cases and readings. There is no textbook.

Course Requirements and Grading

For each class session, students should read required materials and complete one or two required write-ups. There will be a suggested length to the write-ups, generally less than 1,000 words per week, not counting extra credit answers. For example, if there are two write-ups for one week, the two write-ups should typically be less than 500 words each. Write-ups should be submitted to the corresponding weekly assignment on Canvas before the beginning of class. There will typically be two assignments for each class, one for the required questions and one for extra credit questions. While required assignments should be submitted before 12:00 noon on the day of class, there is not exlicit deadline for extra credit questions. Extra credit assignments should be submitted separately from regular assignments.

Students are required to submit written assignments for each class except for the first class. For the first class, the assignment is for extra credit and may be turned in after the class has met.

Coursepacks containing required cases may be purchased from the HBS website using this unique coursepack link:
`https://hbsp.harvard.edu/import/1141417`
Some case materials are optional and need not be purchased. If you would like to purchase them, the optional HBS readings are available from the HBS website using this coursepack link for optional readings only:
`https://hbsp.harvard.edu/import/1141420`
Except for the coursepacks containing the required and optional cases, all other required and optional readings should be available for free online. Students may download the readings by clicking on the link in the syllabus, cutting and pasting the link into google or google scholar, or—for some readings—by downloading course files from Canvas. **Students should not have to pay for any assigned readings except for the coursepacks.**

Students should be prepared to discuss and defend the ideas in their write-ups in class. For some questions, there is no “right” or “wrong” answer, in the sense that finance and economics professors themselves are likely to disagree about the answers to the questions. In each class, several related financial concepts or theories will be discussed; students should review these topics to the extent covered in previous courses. Sometimes, the answers to questions will not be heavily mathematical, but mathematical intuition will often be required to address some of the questions.

Students are encouraged to earn extra credit in two ways: (1) Submitting written answers to extra credit questions, and (2) making a group presentation of the solution to a difficult extra credit question. Written answers to extra credit questions may be submitted late, but more credit is awarded for written answers submitted before the deadline. Presentations of difficult extra credit questions will mostly be made to me during my office hours. Such presentations should last about 15 minutes, with an additional 15 minutes for discussion. Meetings with me should be scheduled in advance. Extra credit questions suitable for group presentations are marked with one, two, or three asterisks ("*", "**" or "***"). Questions marked with asterisks are harder; therefore more extra credit is possible. Groups can include four students or fewer. Students working on group assignments should discuss their plans with me during office hours before they complete the assignment.

Grading will be based on case write-ups (40%), class discussion (10%), group presentations (10%), and a final exam (40%).

Missing class is strongly discouraged. A student who misses a class should turn in the assigned write-up before the missed class meets.

Students expecting to receive a grade of *A* should do some extra credit assignments and make one or more group presentations.

Case write-ups are graded on a scale with the following interpretation: 10 = A++, 9 = A+, 8 = A, 7 = A-, 6 = B+, 5 = B, 4 = B-, 3 = C, 2 = D, 1 = F, 0 = missing. Most grades for required questions are in the range 5, 6, 7. Extra credit is added with extra points. For example, a grade of 6.0 + 0.5 = 6.5 indicates a score of 6 for assigned questions plus 0.5 points for extra credit questions.

The final exam will have a format similar to past final exams. **To help you study for the final exam, I have placed numerous examples of past exams on Canvas, under "Files/.../Past-Exams". Since the material covered by this course has changed over time, some of the questions from past exams can be ignored when studying for the final exam.**

Honor Code

The honor code applies to this course, just as it applies to other courses at the University of Maryland. The University requests that the following information be included in course syllabi:

> The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit `http://www.shc.umd.edu` .
>
> To further exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations and assignments: "I pledge on my honor that I

have not given or received any unauthorized assistance on this examination (assignment)."

Write-ups should specifically cite any external sources of useful case-specific relevant information and concepts other than general knowledge MBA students should be aware of, assigned materials, class lecture notes, and classroom discussion. Information from "external sources" includes help from other students, materials downloaded from the web or other public sources (e.g. newspaper articles, 10-K's, lecture notes or case solutions by professors at other universities), privately shared materials (e.g. a case write-up prepared by someone else, perhaps prepared for a similar course previously), and previous personal knowledge (e.g. personal contacts from a previous job or previous discussions with a student who has taken a private equity course). My expectation for write-ups is that students will not need to consult external sources of information. I view it as a potential honor violation intentionally not to cite information from external sources, even if such information was acquired unintentionally or prior to taking this course.

For example, the protagonist in the Yale case assignment (week 1B) is a man named David Swensen. Information acquired about him from reading the newspaper or googling his name (either before or after reading the case) should be cited, because a typical MBA student would not be expected to know who David Swensen is. If you acquired this information from reading a newspaper a couple of years ago, it is not necessary to mention the precise newspaper and date of publication of the relevant article, but you should specifically mention that you knew the information from reading the newspaper a few years ago. It is not necessary, however, to cite the fact that students at Yale tend to have high SAT scores, since this information is generally known among MBA students.

Students may talk to other students about the assigned questions, but each student should prepare a write-up individually, without looking at the write-ups of other students. Each student should list on the write-up the names of the other students with whom the student discussed the write-up.

Special Needs

Any student with special needs should bring this to the attention of the instructor as soon as possible, but not later than the second week of class.

Guidelines for Case Write-ups

Case write-ups should be succinct and self-contained. Long write-ups are not necessarily good write-ups. Good business writing makes points in a manner that respects the reader's time. It may sometimes be helpful to attach a spreadsheet or chart to a case write-up. When a spreadsheet is attached to a case write-up, the text of the case write-up itself should describe how the calculations in the spreadsheet are done and should also present the key results from the spreadsheet. While a grader may want to look at the spreadsheet to debug errors, it should not be necessary for a grader to dissect the spreadsheet if the calculations are done correctly. The reader of the case write-up should be able to recreate the spreadsheet (with errors) based on reading the text of the case write-up alone.

Class Schedule

The schedule of classes follows. "Required readings" should be completed before class. Students should come to class prepared to discuss required readings. "Optional readings" are materials students may want to read before class or after class, but they are not required. They may be the subject of class discussion, but the discussion should presume that not all students have read them. They may also be the subject for make-up assignments or extra credit assignments. The "bedtime readings" are completely optional and include books students may want to read in the future, after the course is finished. They are included for general interest.

WEEK 1A: INTRODUCTION: WHO OWNS AND MANAGES ASSETS?

IMPORTANT: Since the first day of classes in Sprint 2024 is a Wednesday and the last day of classes is a Monday, class 1A, 2A, ..., 7A refer to Wednesday classes, and class 1B, 2B, ..., 7B refer to Monday classes! This first class meets on Wendesday, January 24, 2024. There is no writeup due for this first class.

Required Reading

- *The Economist*, February 28, 2008, Survey on Fund Management, "Trillion Dollar Baby," "Money for Old Hope," "Better than Beta," "Plenty of Alternatives," "In the Spotlight," "All Things to All Men," "We Make, You Sell," "Jam Today, Jam Tomorrow," "Sources and Acknowledgments."
- BlackRock Slides, "Understanding Asset Management," November 2015. Earlier version: `https://www.sec.gov/comments/am-1/am1-34.pdf`
- Barbara Novick, Blackrock Slides, "Asset Management: Evolution, Not Revolution." May 2013. `http://www.thefirma.org/files/conference/2013/Novick.pdf`
- Robin Greenwood and David Scharfstein, "The Growth of Finance," *Journal of Economic Perspectives 27*(2), Spring 2013, pp. 3–28. `https://www.aeaweb.org/articles?id=10.1257/jep.27.2.3`

Optional Readings

- European Fund and Asset Management Association, *Asset Management in Europe: An Overview of the Asset Management Industry*, December 2021. `https://www.efama.org/index.php/publications/asset-management-report`

Questions for Case Write-up

You should study the required readings carefully, then prepare a brief write-up (no more than 300 words), which labels each of the following statements as "true", "false", or "uncertain" and briefly justifies why. Your writeup to these optional questions may be turned in after class with comments based on lectures and class discussion, including adding your own different ideas.

1. *EXTRA CREDIT: There is a straightforward way to map the concepts of "mean" and "variance" (including covariance) into what the *Economist* calls "alpha" and "beta".
2. *EXTRA CREDIT: Analysis of tracking error relative to a benchmark portfolio is important for understanding both alpha and beta.
3. *EXTRA CREDIT: Index funds have been growing in recent years because investors want to pay more for beta than alpha.

4. *EXTRA CREDIT: Pension plan sponsors pay the highest fees to active outside managers who understand how risks of the fund's liabilities are correlated with asset returns better than the plan sponsors.

5. *EXTRA CREDIT: According to Blackrock, a typical U.S. corporate pension plan has increased its allocation to equity over time.

6. *EXTRA CREDIT: From Barbara Novick's slides, it is possible to infer several key ingredients in Blackrock's business model.

7. **EXTRA CREDIT: Based on comparing the reports *Asset Management in Europe: An Overview of the Asset Management Industry* for the year 2021 with earlier years, it is clear that the issues which the EFAMA thinks are important have been changing over time.

WEEK 1B: DEFINED CONTRIBUTION PLANS: TARGET DATE RETIREMENT FUNDS

Required Readings

- “The Vanguard Group, Inc. in 2006 and Target Retirement Funds”, HBS Case 207129-PDF-ENG, revised January 28, 2008, in required coursepack.
- Edwin J. Elton, Martin J. Gruber, Andre de Souza, and Christopher R. Blake, “Target Date Funds: What’s Under the Hood?”, Center for Retirement Research at Boston College, Number 17-2, January 2017. `http://hdl.handle.net/2345/bc-ir:107289`
- Magnus Dahlquist, Ofer Setty, Roine Vestman, “On the Asset Allocation of a Default Pension Fund,” *Journal of Finance*, Vol. 73, No. 4, August 2018, pp. 1893–1936. `https://doi.org/10.1111/jofi.12697`

Optional Readings

- Loseto, Marco, Plan Menus, Retirement Portfolios, and Investors’ Welfare. November 1, 2023. Available at SSRN: `https://ssrn.com/abstract=4623276` or `http://dx.doi.org/10.2139/ssrn.4623276`
- Shlomo Benartzi and Richard H. Thaler, “Heuristics and Biases in Retirement Savings Behavior,” *Journal of Economic Perspectives*, Volume 21, Number 3, Summer 2007, pp. 81–104.
- Sendhil Mullainathan and Richard H. Thaler, “Behavioral Economics,” NBER Working Paper 7948, October 2000.
- Meir Statman, “What Is Behavioral Finance?” *Behavioral Finance and Investment Management*, pp. 1–12, from *Handbook of Finance*, vol. 2, chapter 9, edited by Frank J. Fabozzi (Hoboken, NJ: John Wiley & Sons, Inc.), pp. 79–84.
- Richard H. Thaler and Cass R. Sunnstein, “Libertarian Paternalism,” *American Economic Review: Paper and Proceedings*, Volume 93, Number 2, May 2003, pp. 175–179.

Questions for Case Write-up

The write-up should be about 700 words.

1. The “100-minus-age” rule says that a person saving for retirement should invest in equities a percentage of assets equal to 100 minus the saver’s age. For example, the “100-minus-age” rule implies that a 30-year old investor should invest 70% of assets in stocks and 30% in bonds. How close do Vanguard’s life cycle funds come to matching the 100-minus-age rule? Is Fidelity closer?
2. Is Vanguard’s approach to investing on behalf of its customers an economically efficient way to organize saving for retirement? When investing in a target date retirement fund, how much is it appropriate to pay for alpha and beta?

3. What is the difference between an index fund and an ETF? Why have ETFs become more important in recent years?

4. When assets are moved from actively managed funds investing on behalf or defined benefit pension plans to passively managed indexed mutual funds used in defined contribution plans, does this tend to stabilize or destabilize returns on *individual stocks*? On the *market portfolio*?

5. When assets are moved from passively managed indexed mutual funds to ETFs, does this tend to stabilize or destabilize returns on *individual stocks*? On the *market portfolio*?

6. ***EXTRA CREDIT: Read the paper by Dahlquist et al. What is the purpose of defining a default asset allocation for a pension fund? Provide a conceptual example of different pension funds for which different default allocations would be appropriate.

7. **EXTRA CREDIT: How fast should target date retirement funds rebalance their portfolios in response to large market movements (intraday, daily, weekly, monthly, quarterly, annually)? Should the rebalancing strategy be predictable or unpredictable (e.g., announced to the market)? Gradual or all-at-once?

8. *EXTRA CREDIT: Consider the following statement: "If an employer transitions from a defined benefit fund to a defined contribution fund, then all employees should be required to participate in a life cycle fund." What would Thaler say about this? What do you think?

9. *EXTRA CREDIT: Would Vanguard like the paper by Benartzi and Thaler? Why or why not?

WEEK 2A: UNIVERSITY ENDOWMENTS AND ALTERNATIVE ASSETS

Required Reading

- "Yale University Investments Office: February 2015," HBS Case 815124-PDF-ENG, revised April 22, 2015, in required coursepack.
- Sabrina Willmer and Tom Moroney, "Boston hedge fund is largest in world run by a woman," Bloomberg News, February 04, 2016
- Mulcahy, Diane, Bill Weeks, and Harold Bradley, "We Have Met the Enemy . . . and He is Us: Lessons from Twenty Years of the Kauffman Foundation's Investments in Venture Capital Funds and the Triumph of Hope Over Experience," Kauffman Foundation, May 2012. Available at SSRN:
  `http://ssrn.com/abstract=2053258`
  or
  `http://dx.doi.org/10.2139/ssrn.2053258`

Optional Reading

- "Harvard Management Company (2010)," HBS Case 211004-PDF-ENG, revised May 30, 2012, in optional cousepack. This case can be used as a make-up case or a late case for students unable to complete the Yale case before class. Please answer the same questions as for the Yale case, using your judgement to adapt the questions to Harvard. I hope that some students choose this case as an alternative because Harvard and Yale approach asset management differently in some respects, and these differences raise interesting issues.)
- "Secrets of the Academy: The Drivers of University Endowment Success," Josh Lerner, Antoinette Schoar, and Jialan Wang, manuscript, October 30, 2007.
  `https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.22.3.207`
- "Harvard Management Company Endowment Report, Message from the CEO," Harvard Management Company, September 2009.
- "Harvard Management Company Endowment Report, 2020," Harvard Management Company.
  `https://www.hmc.harvard.edu/partners-performance/#performance`

Optional Bedtime Reading

- David F. Swensen, *Pioneering Portfolio Management: An Unconventional Approach to Institutional Investing*, 2000.
- David F. Swensen, *Unconventional Success: A Fundamental Approach to Personal Investment*, 2005.

Questions for Case Write-up

You should read the Yale case carefully, then prepare a brief write-up (no more than 700 words) which addresses the following questions:

1. How would David Swensen define the efficient markets hypothesis?

2. Does Swensen believe in market timing in markets for stocks, bonds, private equity, real estate, oil and gas? What specific features of private equity markets make market timing difficult?

3. Consider a choice between the following two different hedge funds: (1) a fund run by former university professors who use sophisticated statistical algorithms to pick stocks based on public accounting and returns data using techniques found in published finance literature; (2) a fund managed by energy industry experts with engineering undergraduate degrees from prominent state universities (no graduate degrees) and with many personal contacts in the industry developed based on years of industry experience? Which fund would David Swensen probably like more?

4. What does the following statement mean? "We would have been in trouble if all our commitments had been called at once."

5. Did Yale get into trouble during the financial crisis? What role did Yale's AAA credit rating play?

6. How do you think Swensen should compensate his own employees? How should Swensen himself be compensated?

7. Is the size of Swensen's staff appropriate for the size of the endowment? How would the organization of the investment process for private equity need to change if the endowment were ten-times its current size? One tenth its current size? What recommendations would Swensen make about the asset allocation strategy of small university endowments?

8. Do the large differences in performance between top-quartile and bottom quartile venture capital funds imply that there are differences in "ability" of venture capital funds which Swensen and his team might be able to identify? How should differences in ability of venture capital fund managers show up in performance data?

9. If Swensen does not like financial engineering, why would he invest in Nancy Zimmerman's hedge fund Bracebridge Capital?

10. *EXTRA CREDIT: Should Yale try to modify limited partnership agreements of the funds in which it invests so that it can exercise significant power over specific investment decisions, in order to better employ its accumulated expertise? HINT: You might need to think like a lawyer to answer this question correctly!

11. **EXTRA CREDIT: If Swensen decides that the CAPM beta of private equity is larger than previously thought, how would this information affect his fund's allocation to private equity, taking into account the historical returns earned by private equity investments.

12. *EXTRA CREDIT: How much transparency should Yale demand from the funds it invests it? How would Yale prevent its hedge fund managers from "reaching for yield" or practicing financial engineering?

13. *EXTRA CREDIT: Explain how having separate accounts would have been helpful to Yale's hedge fund investments?

14. *EXTRA CREDIT: If the university believes that having "superstars" like David Swensen in charge of its endowment allows it to outperform other university endowments by several hundred basis points per year, does this belief suggest that the university should increase, decrease, or leave the same its target annual spending rate as a proportion of assets, in comparison with an alternative belief that Yale's stellar performance over the years is the result of luck rather than having super-skilled endowment managers? How is your answer influenced by changes in Yale's spending rate over time?

15. **EXTRA CREDIT: A "convex function" is defined as a function with the property that a straight line connecting two points on the graph of the function never lies below the graph itself. Draw a graph of the payoff of a call option as a function of the realized value of the underlying asset. Explain how this is similar to the carried interest component of the compensation of a private equity asset manager. Explain how the slope and convexity of the function are related to incentives for the asset manager to work on behalf of the client (Yale) and to take risk. With respect to the investment strategy of the fund, does the convex shape suggest that Yale is more risk averse or less risk averse than its asset managers?

WEEK 2B: THE NORWAY MODEL

Required Reading

- David Chambers, Elroy Dimson, Antii Ilmanen, "The Norway Model," October 11, 2011. `https://www.legis.nd.gov/assembly/62-2011/docs/pdf/lbs082312appendixd.pdf`

Optional Readings

- "Sovereign Wealth Funds: A Bottom-up Primer," JPMorgan Research, May 22, 2008. (available on-line)

Questions for Case Write-up

You should study the required readings carefully, then prepare a brief write-up (no more than 200 words) which addresses the following questions:

1. How does Norway deal with the following objectives, which a sovereign wealth fund could conceivably pursue: (1) provide future income to citizens, (2) develop the local economy, (3) enhance strategic relationships with other countries, (4) minimize corruption, (5) stabilize the local macro-economy, (6) incentivize the fund-managers to generate alpha, (7) achieve appropriate diversification, (8) pursue environmal, social, and governance ("ESG") objectives?

2. In pursuing ESG objectives, how does Norway choose between an "activist" approach of trying to change companies and a "passive" approach of divesting from companies it does not like? How should the "alpha costs" of ESG investing theoretically be calculated? How can the role of politics be minimized?

3. What are the differences between the "Norway model" and the "Yale model"? Should Norway use the Yale model? Should Yale use the Norway model? Are there reasons why Yale and Norway should use different investment models?

WEEK 3A: PRIVATE EQUITY FUND-RAISING

Required Readings

- "Acme Investment Trust," HBS Case 296042-PDF-ENG, revised October 6, 2000, in required coursepack. (This case is substantially different from the newer case with the same name "Acme Investment Trust:: Januray 2001." I prefer the older case.)

Optional Readings

- "Note on Private Equity Partnership Agreements," HBS Note, 294084-PDF-ENG, revised August 14, 2007, in optional coursepack.
- "A Note on Private Equity Fundraising," HBS Note 201042-PDF-ENG, revised August 13, 2007, in optional coursepack.

Questions for Case Write-up

The write-up should be about 500 words without EXTRA CREDIT questions:

1. Why is Warburg, Pincus proposing a different fee structure from the standard arrangement?
2. How would David Swensen evaluate Yale's investing with Warburg, Pincus?
3. What compensation issues does Warburg, Pincus face with its own employees, which are different from a smaller, newer VC organization?
4. Consider asset allocation decisions like: 1) how much to invest in private equity versus venture capital; 2) how much to biotech versus telecom; 3) how much international versus domestic; 4) how much South America versus Eastern Europe. Should these decisions be made by endowments and pension fund plan sponsors, or by the asset managers they hire to manage their assets?
5. **EXTRA CREDIT: What is the present value over the life of the fund of a 1% or 1.5% management fee, based on committed capital? For the purpose of this question, assume that the fee is phased out over the last several years of the fund's life in the following manner: 100% of fee for years 1-6, 75% of fee for year 7, 50% of fee for year 8, 25% of fee for year 9, no fee after year nine. Assume that the risk-free rate is 5%. To make calculations simple, assume the fee is paid annually, at the end of the year. (More realistically, it might be paid quarterly, in advance.)
6. **EXTRA CREDIT: What is the ex-post value (as of year ten) of 15% or 20% carried interest, under the assumption that all committed capital is eventually invested, and for each one hundred dollars contributed by the limited partners (including management fees), the fund returns 6x in cash or distributed securities in the following manner: $50 in year 3, $75 in year 4, $100 in year 5, $150 in year 6, $100 in year 7, $75 in year 8 and $50 in year 9. Perform the same calculation for 0.5x, 1.0x, 2.0x, 3.0x,..., 10.0x, scaling the value of the

distributed securities proportionally. Assume that the values are returned at the end of the year, and assume that the investors receive all of their committed capital back before the VCs collect carried interest. To make your answer precise, assume that all carried interest is invested at a risk-free rate of 5% from the time received until the end of year ten.

7. **EXTRA CREDIT (HARDER): What are the financial implications of the proposed changes for Warburg, Pincus? In particular, for what multiple (e.g., 3x or 4x or some other number) is the total compensation the same for the two different compensation schemes.

8. **EXTRA CREDIT: Continue the same assumptions about management fees and return of capital as above. Assume that the committed capital not needed for management fees is invested in equal annual installments over 4 years. Calculate the IRR of the fund in two different ways. First, consider as cash flows only payments into the fund when capital is called and distributions out of the fund valued at the date of distribution. Second, calculate IRR based on two cash flows: the amount of committed capital at the beginning and the amount of returned capital at the end. Before the committed capital is called and between the time of distribution and the end of the fund's life, assume that the capital is invested at the risk-free rate of 5%. Without doing any spreadsheet calculations, can you use "numerical intuition" to guess what you might discover from specific calculations?

9. ***EXTRA CREDIT (VERY HARD): This is hard, more like a Ph.D. dissertation topic. Thinking of carried interest as an option, how much is this option worth to Warburg if the carry is 15 or 20%? Does a change from 20%/1% to 15%/1.5% represent and increase or decrease in compensation to Warburg? (This question is answered one way in the paper by Metrick and Yasuda. I propose a simpler "back-of-the-envelope" answer in notes I will post on Blackboard.)

WEEK 3B: PRIVATE EQUITY COMPENSATION

Required Readings

- GAO, Statement of Charles A. Jeszeck, Testimony Before the Subcommittee on Health, Employment, Labor and Pensions, Education and Labor Committee, House of Representatives, *Private Pensions: Conflicts of Interest Can Affect Defined Benefit and Defined Contribution Plans*, March 24, 2009, GAO-09-503T.

- GAO, Statement of Barbara Bovbjerg, Testimony Before the Subcommittee on Health, Employment, Labor, and Pensions, Committee on Education and Labor, House of Representatives, *Defined Benefit Pension Plans: Plans Face Valuation and Other Challenges When Investing in Hedge Funds and Private Equity*, July 20, 2010. GAO-10-915T.

- CBO, Testimony Statement Of Peter R. Orszag, Director, "The Taxation Of Carried Interest," Before The Committee On Ways And Means U.S. House Of Representatives, September 6, 2007, Congressional Budget Office.

Optional Readings

- Andrew Metrick and Ayako Yasuda,"The Economics of Private Equity Funds," *Review of Financial Studies*, 2007. (Interesting management fee model.)
  `https://www.nber.org/conferences/2007/si2007/CF/yasuda.pdf`

- "High Water Marks and Hedge Fund Management Contracts" by Goetzmann, Ingersoll, and Ross (*The Journal of Finance*, August 2003). (The equations are for Ph.D. students, but MBA students can get a sense of the model by reading the text of the paper and trying to figure out tables and graphs.)
  `http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.195.5858&rep=rep1&type=pdf`

- Josh Lerner, Antoinette Schoar, And Wan Wongsunwai, "Smart Institutions, Foolish Choices: The Limited Partner Performance Puzzle," *The Journal Of Finance*, Vol. 62, No. 2, April 2007, pp. 731–764.
  `https://www.nber.org/papers/w11136.pdf`

- Robert M. Conroy and Robert S. Harris, "How Good are Private Equity Returns?" *Journal of Applied Corporate Finance*, Volume 19, Number 3, Summer 2007, pp. 96–108.

- Paul Gompers, Josh Lerner, "An analysis of compensation in the U.S. venture capital partnership," *Journal of Financial Economics*, Volume 51, 1999, pp. 3–44.

- Steven N. Kaplan And Antoinette Schoar, "Private Equity Performance: Returns, Persistence, And Capital Flows," *The Journal Of Finance*, Vol. 60, No. 4, August 2005, pp. 1791–1823.

- "Teena Lerner: Dividing the Pie at Rx Capital (A)," HBS Case 406088-PDF-ENG, revised January 3, 2012, in optional coursepack.

Questions for Case Write-up

The write-up should be about 300 words without EXTRA CREDIT questions:

1. Why is the 20% share of profits calculated differently for private equity funds than for hedge funds?

2. How does Yale deal with the issues addressed in the three GAO readings?

3. **EXTRA CREDIT: Read the papers "High Water Marks and Hedge Fund Management Contracts" by Goetzmann, Ingersoll, and Ross (*The Journal of Finance*, August 2003). Since this is a paper aimed at readers with Ph.D. degrees in finance or economics, please feel free to skim through equations that you do not understand, but instead focus on the intuition behind the authors' ideas and the content of the tables. Provide a brief summary of what you think this paper says that might be of interest to potential limited partners in hedge funds, such as Yale or Harvard.

4. ***EXTRA CREDIT (VERY HARD): Try to replicate a special case of the methodology in the paper by Goetzmann, Ingersoll, and Ross.

The following questions, based on the optional Teena Lerner case, are not required. I am proposing them for general interest, so that you can compare hedge fund compensation with private equity compensation. If you missed a previous class or assignment, these can be submitted for make-up credits.

1. How is Rx Capital compensated by investors in its fund? How is this compensation different from the way in which private equity funds managers are compensated?

2. Why are "high water mark" formulas used in hedge funds but not in private equity? Under what circumstances would it be appropriate to use a private-equity-style compensation contract for a hedge fund? Under what circumstances would it be appropriate to use a "high-water-mark" style hedge fund contract for a private equity fund?

3. How should Teena Lerner compensate her analysts this year? (There is no correct answer to this question. The "B" case says what she actually did, but please do not read it. Perhaps she could have done better!)

4. Propose a "time consistent" formula for compensating analysts, i.e., propose a formula that you believe would be appropriate to apply in all circumstances, even when things do not work out as expected. Explain how your formula differs from Teena Lerner's. Should employees be able to predict accurately the bonuses they will receive?

5. Should Teena Lerner share tell her limited partners how her compensation formula for analysts works?

WEEK 4A: "WARREN BUFFETT VERSUS AIG:" VALUE INVESTING, CARRY TRADES, AND CREDIT DEFAULT SWAPS

Required Readings

- 2008 Letter to Shareholders from Warren Buffett , February 27, 2009.
  `http://www.berkshirehathaway.com/letters/letters.html`

- *Financial Crisis Inquiry Report.* Pay particular attention to the sections on AIG: "WELL BIGGER THAN WE EVER PLANNED FOR," pp. 243–244. "AIG'S DISPUTE WITH GOLDMAN: 'THERE COULD NEVER BE LOSSES,' pp. 265–274. CHAPTER 19: SEPTEMBER 2008: THE BAILOUT OF AIG, pp. 345–351.
  `https://www.govinfo.gov/content/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf`

- Anil K. Kashyap and Raghuram G. Rajan and Jeremy C. Stein, "Rethinking Capital Regulation", 2008 Economic Symposium, *Maintaining Stability in a Changing Financial System*, March 2008. Federal Reserve Bank of Kansas City.
  `http://scholar.harvard.edu/files/stein/files/frb-kansas-2008.pdf`

- Board of Governors of the Federal Reserve System, *Review of the Federal Reserve's Supervision and Regulation of Silicon Valley Bank*. Available at `https://www.federalreserve.gov/publications/review-of-the-federal-reserves-supervision-and-regulation-of-silicon-valley-bank.htm`

Optional Readings

- Frazzini, Andrea, David Kabiller, and Lasse H. Pedersen. "Buffett's Alpha", working paper, AQR Capital Management and New York University, 2012. Available at:
  `http://csinvesting.org/wp-content/uploads/2012/08/buffetts_alpha_-_frazzini_kabiller_and_pedersen.pdf`

- Martin, Gerald, and John Puthenpurackal. "Imitation is the sincerest form of flattery: Warren Buffett and Berkshire Hathaway." Available at SSRN 806246 (2008). Available at
  `https://papers.ssrn.com/sol3/papers.cfm?abstract_id=806246`

- Warren Buffett letters in more recent Berkshire-Hathaway annual reports.
  `http://www.berkshirehathaway.com/letters/letters.html`

Questions for Case Write-up

VERY TENTATIVE: The write-up should be about 600 words.

1. Does Buffett believe that banks are more deserving of bailouts than other types of companies? Why or why not?

2. Explain some similarities and differences between Warren Buffett's business model, AIG's business model (according to the FCIC Report), Warburg Pincus' business model, and Yale's investment strategy. Issues to consider include leverage, marking-to-market, hands-on management of companies, and perhaps other things (but save option writing for the next question).

3. One type of business model involves writing out-of-the-money options and hoping to make a profit from doing so. Writing insurance is an analogous strategy. According to Buffett, is this the way Berkshire Hathaway makes most of its money? Is this the idea behind Gary Gorton strategy, according to the FCIC Report?

4. Compare Buffett's letter to shareholders for 2009 (published 2010), p. 16, with the Financial Crisis Inquiry Report, pp. 243–244. What does Buffett think about AIG management?

5. Does a comparison of Buffett with AIG illustrate Kashyap, Rajan, and Stein's thinking about the role of leverage in asset management?

6. What does Buffett think is wrong with the Black-Scholes model? (This is a very hard question!)

7. ***EXTRA CREDIT: Using the Black-Scholes model to quantify returns from writing out-of-the-money options.

8. **EXTRA CREDIT: Do Frazzini, Kabiller, Pedersen believe that Buffett earns superior returns by tilting his portfolio towards value stocks and then exercising stock picking ability by choosing superior value stocks for the portfolio?

9. **EXTRA CREDIT: Is the analysis of Buffett's strategy by Martin and Puthenpurackal consistent with the analysis by Frazzini, Kabiller, Pedersen? How are the analyses similar or different?

WEEK 4B: FINANCIAL REFORM: GOLDMAN SACHS AND THE ABACUS DEALS

Required Readings

- Abacus Offer Document.
- SEC Abacus Complaint.
- Dodd-Frank Summary.
- Davidoff, Steven, Alan Morrison, and William Wilhelm. "Computerization and the ABACUS: Reputation, trust, and fiduciary duties in investment banking." *Journal of Corporation Law*, forthcoming, 2011.
  `https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1747647`
- Darrell Duffie, "The ABACUS 2007 AC-1 Deal: Structure and Investment Incentives," SLIDE PRESENTATION, Graduate School of Business, Stanford University April 27, 2010.
- FCIC Report. (Sections necessary for answering questions only.)

Optional Readings

- Dodd-Frank Act (full text). Browse to get an idea of the complexity of financial legislation.

Questions for Case Write-up

The write-up should be about 500 words.

1. Examine "Figure 1: The Abacus Transaction" , p. 22, in the paper by Davidoff, Morrison, and Wilhelm. Why is Paulson's bet against the supersenior tranche depicted differently from his bet against the A-1 and A-2 tranches? Why is ABN-AMRO in this picture? Which arrows indicate that some investors were purchasing an asset which looked like a bond with default risk? Where did the cash the investors ACA and IKB paid for these bonds go? What features of the Abacus transaction make it a synthetic CDO-squared?
2. According to the SEC complaint, why did Goldman Sachs commit fraud? Why did Goldman Sachs agree to pay hundreds of millions of dollars to settle the case?
3. Based on comparing the Conclusions by the Democratic majority on pages xv-xviii (pdf pp 15-28) of the FCIC Report with the Dissenting views by the Republican minority on pages 411-534 (pdf pp 439-562) of the FCIC Report, who would tend to think that the Abacus transaction is a good symbol of the financial crisis, the Republicans or the Democrats?
4. **EXTRA CREDIT: What features of the Financial Reform Act address the causes of the financial crisis? What features of the Financial Reform Act address issues raised by the Abacus transaction? What features of the Financial Reform Act address issues raised in the London Whale case?

WEEK 5A: PENSION FUNDS: GENERAL MOTORS

Required Readings

- "General Motors U.S. Pension Funds," HBS Case 206001-PDF-ENG, revised December 14, 2005, in required coursepack.
- "A Guide to Understanding the Pension Benefit Guaranty Corporation," Congressional Budget Office, September 2005.
  `https://www.cbo.gov/publication/17179`

Optional Reading

- Congressional Budget Office, "The Risk Exposure of the Pension Benefit Guaranty Corporation," September 2005.
  `https://www.cbo.gov/publication/17160`
- "The U.S. Retirement Savings Market and the Pension Protection Act of 2006," HBS Note 207130-PDF-ENG, revised June 25, 2008, in optional coursepack.
- Pension Benefit Guarantee Corporation, *Annual Report*, 2014 (and other years).
- PBGC, "Options to Improve the Financial Condition of the Pension Benefit Guaranty Corporation's Multiemployer Program," August 2, 2016
  `https://www.cbo.gov/publication/51536`
  See also `https://www.pbgc.gov/about/projections-report`

Questions for Case Write-up

The write-up should be about 500 words:

1. If falling interest rates are good for bond returns, why might they bad for the financial status of pension funds which are heavily invested in bonds?
2. If the pension plan invests in stocks, should the risk premium on stocks enter into a calculation of whether the plan is over-funded or underfunded?
3. Define ABO ("accumulated benefit obligation") as the present value of pension liabilities, under the assumption that the plan is terminated immediately, implying workers will no longer accumulate additional years of service and future salary increases will not affect pension benefits. Define PBO ("projected benefit obligation") as the present value of pension obligations, taking into account current years of service and taking into account the expectation of future salary increases. What is the better measure of the cost to a firm of a worker's fringe benefits in a given year: an amount that includes what the firm needs to contribute each year to fund ABO or the amount that includes what the firm needs to contribute each year to fund PBO? From a finance perspective, which is the better measure of a pension's burden on a firm, ABO or PBO?

4. Is there a case to be made that corporate pension funds should invest only in bonds? To what extent does this case depend on risk and return considerations? What about tax considerations?

5. Why might corporations want to under-fund their pension funds? Why might corporations want to over-fund their pension funds? Conceptually, are there put or call options involved in thinking about over-funding and under-funding? What role does the PBGC play in your thinking about firm's incentives to over-fund or under-fund plans?

6. What is GM trying to do in the case?

7. **EXTRA CREDIT: In the CBO reading "The Risk Exposure of the Pension Benefit Guaranty Corporation (September 2005)," consider Summary Table 2, p. ix. Explain intuitively (no math) why limiting a pension plan's investments in equities to 30% of plan assets decreases the net costs of the PBGC? Why does making permanent the increased discount rate for calculating pension fund liabilities increase the costs to the PBGC? How would an increase in stock prices, a change in the risk premium for investing in stocks (holding stock prices constant), a change in the volatility of stock returns, a change in the PBGC's investment strategy (percentages in stocks and bonds), or a change in the level of the long-term risk free rate affect these calculations? What is strange about the CBO's use of the expected return on equity in its option-pricing approach? (For further discussion, see pp. 12-13 and Appendix C, pp. 19-25.)

8. ***EXTRA CREDIT: Consider a hypothetical example of a pension fund with one newly hired worker, 35 years old, with a salary of $100,000 per year and zero years of service. The worker has a probability of leaving his job equal to 4% each year. At age 65, the worker retires, and receives as a pension an annual payment defined by the plan to be equal to 2% of his last year's nominal salary times his number of years of service (thirty years if he is still with the firm when he retires). For simplicity, assume that the worker lives until age 85, collecting exactly 20 years of pension benefits, then dies. The worker is expected to receive pay increases equal to inflation-plus-two-percent per year from age 40 until age 65, as long as he stays with the firm and even if real and nominal interest rates change. Current nominal interest rates for all maturities are 6% per annum, and the expected rate of inflation is 3.5% per annum (reflected in real yields on inflation-protected bonds of about 2.5%). Calculate specific values for ABO and PBO from this information. Calculate how much money the firm needs to contribute to the pension plan each year to fund ABO and PBO. Calculate the sensitivity of the ABO and PBO to changes in real and nominal interest rates by calculating what happens if real and nominal interest rate rise or fall by 50 basis points. (In this problem, assume that all cash flows occur once at the end of each year, and assume that the worker leaves or stays with the firm at the end of each year, after accumulating the benefits for that year. Assume that the worker will accumulate at least one year of service. Assume for simplicity of calculation that the firm contributes to the fund at the end of each of the 30 years 36, 37, 38, ...65, and the worker collects benefits at the end of each years 66, 67, 68, ..., 85. THIS PROBLEM MIGHT TAKE LONGER THAN YOU THINK! IT IS POSSIBLE TO SOLVE WITH AN EXCEL SPREADSHEET, BUT IT IS MORE APPROPRIATE AND EASIER TO USE PYTHON OR R.)

WEEK 5B: STATE AND MUNICIPAL PENSION FUNDS, PUERTO RICO

Required Readings

- Douglas J. Elliott, "State and Local Pension Funding Deficits: A Primer," The Brookings Institution, December 3, 2010.
  `http://www.brookings.edu/~/media/research/files/reports/2010/12/06-state-local-funding-elliott/1206_state_local_funding_elliott.pdf`

- "Inside the Billion-Dollar Battle for Puerto Rico's Future," New York Times, December 19, 2015.
  `http://nyti.ms/1Ph7YQ4`

- "Franklin Making Failed Puerto Rico Fund Disappear through Merger,"BloombergBusiness, February 24, 2016.
  `http://www.bloomberg.com/news/articles/2016-02-24/franklin-making-failed-puerto-rico-fund-disappear-through-merger`

- Michelle Kaske, "Puerto Rico Bonds Snapped up by Insurers as Crisis Nears Climax," Bloomberg, March 10, 2016.
  `http://www.bloomberg.com/news/articles/2016-03-10/puerto-rico-bonds-snapped-up-by-insurers-as-crisis-nears-climax`

- Anne O. Krueger, Ranjit Teja, And Andrew Wolfe, "Puerto Rico—A Way Forward," June 29, 2015.
  `www.bgfpr.com/documents/puertoricoawayforward.pdf`

- David A. Skeel, Jr., "State Bankruptcy from the Ground Up," in *When States Go Broke: The Origin, Context, and Solutions for the American States in Fiscal Crisis*, ed. Peter Conti-Brown and David A. Skeel, Jr.
  `http://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1370&context=faculty_scholarship`

- Rachel Greszler, "Misguided Precedent for Puerto Rico would Set Dangerous Precedent," *Issue Brief No. 4493*, The Heritage Foundation, December 10, 2015.
  `http://www.heritage.org/research/reports/2015/12/misguided-plan-for-puerto-rico-wou`

- "Puerto Rico's Economic and Fiscal Crisis," U.S. Treasury.
  `https://www.treasury.gov/connect/blog/Documents/Puerto_Ricos_fiscal_challenges.pdf`

- "Addressing Puerto Rico's Economic and Fiscal Crisis and Creating a Path to Recovery: Roadmap for Congressional Action," The White House.
  `https://www.whitehouse.gov/sites/default/files/roadmap_for_congressional_action___puerto_rico_final.pdf`

- Matthew Hoops, Irina Stefanescu, and Ivan Vidangos, "Defined-Contribution Pension Plans for State and Local Government Employees in the Financial Accounts of the United States," FEDS Notes, April 20, 2015.

http://www.federalreserve.gov/econresdata/notes/feds-notes/2015/defined-contribution-pension-plans-for-state-and-local-government-employees-2015042
html

- Irina Stefanescu and Ivan Vidangos, "Introducing Actuarial Liabilities and Funding Status of Defined-Benefit Pensions in the U.S. Financial Accounts," FEDS Notes, October 31, 2014.
  http://www.federalreserve.gov/econresdata/notes/feds-notes/2014/introducing-actuarial-liabilities-funding-status-defined-benefit-pensions-us-financ
  html

Optional Readings

- Jr, David A. Skeel (2012) "States of Bankruptcy," *University of Chicago Law Review: Vol. 79:* Issue 2, Article 4. Available at:
  http://chicagounbound.uchicago.edu/uclrev/vol79/iss2/4 or https://chicagounbound.uchicago.edu/uclrev/vol79/iss2/4/
- David Skeel, "Give States a Way to Go Bankrupt," *The Weekly Standard*, November 29, 2010.
  https://www.washingtonexaminer.com/weekly-standard/give-states-a-way-to-go-bankrupt
- GAO, *State And Local Government Pension Plans: Governance Practices and Long-term Investment Strategies Have Evolved Gradually as Plans Take On Increased Investment Risk*, August 2010, GAO-10-754.
  https://www.gao.gov/products/GAO-10-754
- Robert Novy-Marx and Joshua D. Rauh, "The Liabilities and Risks of State- Sponsored Pension Plans," *Journal of Economic Perspectives*, Volume 23, Number 4, Fall 2009, Pages 191-210. https://www.aeaweb.org/articles?id=10.1257/jep.23.4.191
- *A Widening Gap in Cities: Shortfalls in Funding for Pensions and Retiree Health Care*, PEW Charitable Trusts, January 2013.
  http://www.pewtrusts.org/~/media/legacy/uploadedfiles/pcs_assets/2013/Pewcitypensionsreportpdf.pdf

Questions for Case Write-up

The write-up should be about 500 words. Questions 1–4 are based on the article by Elliott. Question 5 is based on the article by Skeel.

1. What unambiguous principal of finance, agreed to by virtually all economists, is violated by the accounting standards used by state and local governments to calculate how much their pension plans are overfunded or underfunded?
2. Would economists approve of the approach taken in the FEDS Notes?

3. If all state and local pension plans were terminated, with benefits based on past service protected but benefits based on future service replaced by defined contribution pension plans, how many dollars would state and local governments have to contribute to their terminated defined benefit pension plans to make them fully funded, according to the logic used by Douglas Elliott? Is this amount the same as the amount that they would have to contribute to their plans now to make them fully funded, if states shifted to using the accounting standards used by corporations?

4. Consider a pension plan invested in risky assets to meet future pension obligations. Define a hypothetical insurance policy ("put option") which pays off the amount necessary to meet the future pension obligations if the risky assets in the plan fail to generate enough value to pay all pension obligations. Define a hypothetical ex post pension surplus ("call option") as the value left in the the fund after meeting all pension obligations under circumstances when the fund generates more than enough cash flow to meet all obligations. What does put-call parity say about this? How can the approach of Biggs (footnote 3) be reconciled with the deficit numbers of Novy-Marx and Rauh mentioned in the same paragraph?

5. Take a look at the information in table 1 on about p. 8 of the reading by Douglas Elliott. Assume that the "as reported" value of liabilities in line 1 is based on a discount rate of 8%. Assume that the duration of the liabilities is 13 years. What implied rate for U.S. treasuries is approximately consistent with the "treasury" liability number in line 3?

6. How does David Skeel propose to address the legal and constitutional issues which make bankruptices of states different from other types of bankruptcies, including municipalities?

7. Can you describe a "Republican" and "Democratic" approach to the problems faced by Puerto Rico? Is Skeel's approach like that of a Republican or Democrat?

8. Why would Franklin merge a failing fund into a bigger fund rather than liquidate it?

WEEK 6A: ASSET MANAGERS AND SYSTEMIC RISK: ESPECIALLY MONEY MARKET MUTUAL FUNDS

Required Readings

- OFR study of the asset management industry: *Asset Management and Financial Stability*, Office of Financial Research (OFR), September 2013.
`http://financialresearch.gov/reports/files/ofr_asset_management_and_financial_stability.pdf`

- Tugkan Tuzun, "Are Leveraged and Inverse ETFs the New Portfolio Insurers?" Finance and Economics Discussion Series, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Washington, D.C., 2013-48, July 16, 2013.
`http://www.federalreserve.gov/pubs/feds/2013/201348/201348pap.pdf`

- Marcin Kacperczyk and Philipp Schnabl, "When Safe Proved Risky: Commercial Paper during the Financial Crisis of 2007-2009," *Journal of Economic Perspectives*, Volume 24, Number 1, Winter 2010, pp. 29–50.

- Blackrock's comments on the above OFR study:
`http://www.sec.gov/comments/am-1/am1-14.pdf`

- Lawrence Schmidt, Allan Timmermann, and Russ Wermers, "Runs on Money Market Mutual Funds," *American Economic Review, vol. 106*, no. 9, September 2016, pp. 2625-57.
`https://www.econstor.eu/bitstream/10419/142118/1/860669092.pdf`

- International Monetary Fund, *Global Financial Stability Report—April 2015—Navigating Monetary Policy Challenges and Managing Risks*, Chapter 3, "The Asset Management Industry and Financial Stability," pp. 93–143 (including Glossary).
`http://www.imf.org/External/Pubs/FT/GFSR/2015/01/index.htm`

- Jack Bao, Josh David, and Song Han, "The Runnables," FEDS Notes, September 3, 2015.
`http://www.federalreserve.gov/econresdata/notes/feds-notes/2015/the-runnables-20150903.html`

- Christine Williamson, "Barbara Novick to Step Down as Vice Chairwoman of BlackRock," January 13, 2021. *Pensions & Investments*. `https://www.pionline.com/money-management/barbara-novick-step-down-vice-chairwoman-blackrock`

- Yeganeh Torbati, "Two Biden aides will recuse on BlackRock issues as past ties pose questions," *Washington Post*, January 2, 2021.
`https://www.washingtonpost.com/business/2021/01/02/blackrock-biden/`

Optional Readings

- BlackRock, "Comments on the Consultative Document of Assessment Methodologies for Identifying Non-Bank Non-Insurer Global Systemically Important Financial Institutions," April 4, 2014. Available at:

http://www.blackrock.com/corporate/en-us/literature/publication/nbni-gsifi-fsb-iosco-040414.pdf

- John J. Shim and Karamfil Todorov,"ETFs, Illiquid Assets, and Fire Sales." Working paper. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3886881.
- Ziang Li, "Long Rates, Life Insurers, and Credit Spreads." Available at https://ziang-li.github.io/files/JMP_Ziang_Li.pdf.
- GAO, *Private Equity: Recent Growth in Leveraged Buyouts Exposed Risks That Warrant Continued United Attention*, September 2008, GAO-08-885. Available at: http://www.gao.gov/new.items/d08885.pdf
- Comments on the OFR report are available at the following: https://www.sec.gov/comments/am-1/am-1.shtml
- *2013 Annual Report*, Office of Financial Research, available at the following: https://financialresearch.gov/annual-reports/files/office-of-financial-research-annual-report-2013.pdf
- *2014 Annual Report*, Office of Financial Research, available at the following: https://financialresearch.gov/annual-reports/files/office-of-financial-research-annual-report-2014.pdf

Questions for Case Write-up

The write-up should be about 300 words, i.e., only one or two sentences for each question. It should be handed in before the first class.

1. How does the OFR define an "asset manager." How is the OFR definition different from BlackRock's?
2. Why do these definitions seem to be so controversial? Why do you think the OFR report was so controversial?
3. What does BlackRock say is the difference between an asset owner and an asset manager? Is BlackRock's classification scheme internally consistent? Does it avoid double-counting of wealth?
4. Suppose that a corporation sets up a pension fund, which invests in a private equity fund (limited partnership), which invests in a leveraged buyout of a family-owned business, which involves transfer of all the shares in the family-owned business to a special purpose vehicle which the private equity fund managers control. According to BlackRock, who is the new owner of the family-owned business: the shareholders of the corporation, the corporation itself, the corporation's pension plan, the beneficiaries of the pension plan, the limited partnership, the general partner of the limited partnership, the limited partners, the special purpose vehicle, or some other entity?

5. In the insurance industry, what are the most important differences between the portfolios held by property and casualty insurers in comparison to life insurers? What explains these differences?

6. Does Blackrock argue that regulation of the asset management industry is a bad idea? What is the political objective Blackrock is trying to achieve in its comments?

7. The tables at the end of the document provide information concerning sizes of asset managers and mergers and acquisition deals involving asset managers. Has Blackrock grown by mergers and acquisition? Based on comparing assets under management (AUM) and prices paid across deals, how much is typically paid in an asset manager M&A transaction, as a percentage of assets under management?

8. According to Blackrock, how are mutual fund redemption rules related to systemic risk? How might Yale deal with this issue?

9. Is the approach by the authors of the IMF study more similar to the approach of the OFR or the approach of Blackrock?

10. Use the paper "The Runnable" to construct a definition of shadow banking.

11. Would the OFR, Blackrock, or the IMF authors consider shadow banking in China to be destabilizing?

12. Consider a leveraged or unleveraged fund which is has exposure of $X\%$ to a broad stock market index (S&P 500) and exposure of $100\% - X\%$ to an approximately risk-free asset (Treasury bills, money market fund, or short-term bond fund). If $0\% < X\% < 100\%$, then the fund is "long only and unleveraged;" if $X\% > 100\%$, the fund is "leveraged long;" and if $X\% < 0\%$, the fund is "short" or "leveraged short." Suppose that the market moves down 1%. Replace dots $(\ldots)$ in the table below with actual numbers to answer the following questions: What is the return on the fund (percent)? How much must the fund buy (+) or sell (−) to re-balance the fund's exposure (percent of fund's assets)? Is the fund's trading stabilizing (buying when market falls, selling when market rises) or destabilizing (selling when market falls, buying when market rises)?

X exposure	Return	Buy (+) or Sell (−)	Stabilizing or Destabilizing
-300%	...	...	...
-200%	...	...	...
-100%	...	...	...
-50%	...	...	...
+0%	...	...	...
+30%	-0.30%	+0.21%	Stabilizing
+50%	...	...	...
+60%	-0.60%	+0.24%	Stabilizing
+90%	...	...	...
+100%	...	...	...
+150%	...	...	...
+200%	-2.00%	-2.00%	Destabilizing
+300%	...	...	...

Summarize the results in this table with one sentence and one mathematical formula. Why is the stabilizing or destabilizing effect of rebalancing a $3X$ levered long ETF different from the stabilizing or destabilizing effect of rebalancing a $-3X$ levered short ETF?

13. If you buy shares in a levered long ETF, is this most similar to buying a call option, selling a call option, buying a put option, or selling a put option? If you buy shares in a levered short ETF, is this most similar to buying a call option, selling a call option, buying a put option, or selling a put option?

**EXTRA CREDIT: Read some of the comments on the OFR report submitted to the SEC.

14. What are the commenters trying to achieve politically?

15. Do they generally agree or disagree with Blackrock?

WEEK 6B: SHADOW BANKING AND FINANCIAL STABILITY IN CHINA

Required Readings

- Allen F, Gu X., "Shadow Banking in China Compared to Other Countries." The Manchester School. 2020;00:1-13.
  Available at `https://doi.org/10.1111/manc.12331`
- Kaiji Chen, Jue Ren, and Tao Zha, "The Nexus of Monetary Policy and Shadow Banking in China." Working Paper 23377.
  `http://www.nber.org/papers/w23377`
- Viral V. Acharya, Jun Qian, and Zhishu Yang, "China's Shadow Banking Sector: Wealth Management Products and Issuing Banks," August 9, 2017. Available at `http://voxchina.org/show-3-31.html`.
- Richard Koss and Xinrui Shi, "Stabilizing China?s Housing Market," July 25, 2018. Available at `http://voxchina.org/show-3-92.html`.
- Guofeng Sun and Junyi Jia, "The Definition and Measurement of China's Shadow Banking System from the Perspective of Credit Money Creation," January 18, 2018. Available at `http://voxchina.org/show-55-40.html`.
- Edward L. Glaeser, Wei Huang, Yueran Ma, Andrei Shleifer, "What Is Special about China?s Housing Boom?" June 20, 2017. Available at `http://voxchina.org/show-3-10.html`.
- Kaiji Chen and Yi Wen, "China's Great Housing Boom," October 11, 2017. Available at `http://voxchina.org/show-3-50.html`.
- Zheng Michael Song and Wei Xiong, "Risks in China's Financial System," NBER Working Paper No. 24230, January 2018. Available at `https://helda.helsinki.fi/bof/bitstream/handle/123456789/15103/dp0118.pdf?sequence=1&isAllowed=y`.
- Wei Xiong's Slides for ECO 494 / FIN 594 at Princeton University. (1) Banking Model, (2) Banking System, (3) Real Estate Market, (4) Shadow Banking. Available on Canvas.
- Douglas Elliott and Yu Qiao, Arthur Kroeber, "Shadow banking in China: A Primer," Economic Studies at Brookings, March 2015.
  `http://www.brookings.edu/~/media/research/files/papers/2015/04/01-shadow-banking-china-primer/shadow_banking_china_elliott_kroeber_yu.pdf`

Optional Readings

- Hanming Fang, Quanlin Gu, Guanghua, Wei Xiong, Li- An Zhou, and Fang, Gu, "Demystifying the Chinese Housing Boom," Chapter in *NBER Macroeconomics Annual 2015, Volume 30*, 2016, Martin Eichenbaum and Jonathan A. Parker, editors (pp. 105–166). Conference held April 17–18, 2015. Available at `https://doi.org/10.1086/685953` or `https://www.nber.org/chapters/c13595`.

- Chen, Kaiji and Yi Wen (2017), "The Great Housing Boom of China," *American Economic Journal: Macroeconomics, 9* (2), 73–114. Available at https://www.aeaweb.org/articles?id=10.1257/mac.20140234 or https://files.stlouisfed.org/files/htdocs/wp/2014/2014-022.pdf.
- Viral V. Acharya, Jun "QJ" Qian, and Zhishu Yang, "In the Shadow of Banks: Wealth Management Products and Issuing Banks? Risk in China," 2016. Available at http://pages.stern.nyu.edu/~sternfin/vacharya/public_html/pdfs/ShadowBank-China-AQY-20161111_all.pdf.
- Ting Chen, Laura Xiaolei Liu, Wei Xiong, and Li?An Zhou, "The Speculation Channel and Crowding Out Channel: Real Estate Shocks and Corporate Investment in China," The Second Atlanta Fed?IMF Workshop on Chinese Economy, August 2016. Paper available at https://www.aeaweb.org/conference/2017/preliminary/paper/sQ6Q6tZE. Slides available at https://www.frbatlanta.org/-/media/documents/news/conferences/2017/0518-second-research-workshop-chinas-economy/presentations/wei-xiong.pdf.

Questions for Case Write-up

The write-up should be about 500 words.

1. Are Chinese shadow banking products more similar to the Goldman Sachs's Abacus deals, issuance of short-term commercial paper by banks like Citibank to finance mortgage-related investments, or to U.S. money market funds?
2. Why might property taxes become important in Chinese cities in the future?
3. According to Edward L. Glaeser, Wei Huang, Yueran Ma, Andrei Shleifer, what policies are necessary to prevent a dramatic decline in housing prices in Chinese cities?
4. According to Kaiji Chen and Yi Wen, how do government controls on internal and external flows of capital affect housing prices in relevant Chinese cities?
5. Overall, do the various authors favor increased or decreased regulation to control China's potential bubble in housing prices?
6. Does Chinese shadow banking pose a systemic risk threat to the Chinese economy?

WEEK 7A: Bond Market Macro-structure: The Role of the U.S. Government in the Bond Markets

Required Readings

- Deborah Lucas, "Credit Policy as Fiscal Policy," Brookings Papers on Economic Activity, Spring 2016.
  `https://www.brookings.edu/bpea-articles/credit-policy-as-fiscal-policy/`

Optional Readings

- GAO, *Troubled Asset Relief Program: Automaker Pension Funding and Multiple Federal Roles Pose Challenges for the Future*, April 2010, GAO-10-492.
  `https://www.gao.gov/products/GAO-10-492`
- GAO, *Financial Assistance: Ongoing Challenges and Guiding Principles Related to Government Assistance For Private Sector Companies*, August 2010, GAO-10-719.
  `https://www.gao.gov/products/GAO-10-719`
- GAO, *Delphi Pension Plans: GM Agreements with Unions Give Rise to Unique Differences in Participant Benefits*, December 2011, GAO-12-168.
  `https://www.gao.gov/products/GAO-12-168`
- GAO, *Troubled Asset Relief Program: Continued Stewardship Needed as Treasury Develops Strategies for Monitoring and Divesting Financial Interests in Chrysler and GM*, November 2009, GAO-10-151.
  `https://www.gao.gov/products/GAO-10-151`

Questions for Case Write-up

This write-up should be about 500 words.

Think of the government as if it were a "plan sponsor" supervising management of a large portfolio of financial assets, to some extent using in-house managers and to some extent using external managers.

1. How do the risks in the U.S. government's portfolio compare with the risks in the portfolios of large pension funds or sovereign wealth funds? In particular, think about differences between "upside" (equity) and "downside" (debt) exposures?
2. How do the investments of the U.S. government compare in size with the investments of the largest sovereign wealth funds?
3. Do you think that sovereign wealth funds have objectives more similar to the U.S. government or to private pension funds?
4. To what extent does the Fed look like a gigantic hedge fund? To what extent do you think that its objectives and management style might be different from a hedge fund?

5. Compare TARP to a large private equity fund. How are its objectives and management different?

6. *EXTRA CREDIT: Compare the FHA, Fannie Mae, and Freddie Mac with a bank or other financial institution investing in home mortgages. What are the similarities and differences between the government approach and the approach of the private sector.

7. *EXTRA CREDIT: Can you do a similar comparison for the FDIC or other government programs?

WEEK 7B: PENSIONS AROUND THE WORLD

Required Readings

- David S. Scharfstein, "Presidential Address: Pension Policy and the Financial System," *Journal of Finance*, Vol. 73, No. 4, August 2018, pp. 1463–151. `https://doi.org/10.1111/jofi.12710`
- Guillermo Ordoñez and Facundo Piguillem, "The Benefits of Shadow Banking in Accommodating Larger Retirement Needs," October 19, 2018. Available at `https://voxeu.org/print/63458`.
- A. Blundell-Wignall, Yu-Wei Hu, and Juan Yermo, "Sovereign Wealth and Pension Fund Issues", OECD Working Papers on Insurance and Private Pensions, No. 14, OECD Publishing. 2008. doi:10.1787/243287223503. Available at `http://www.oecd.org/pensions/private-pensions/40345767.pdf`.

Optional Readings

- CPP Investment Board, 2017 Annual Report. Available at `http://www.cppib.com/documents/1591/2017_Annual_Report.pdf`.

Questions for Case Write-up

The write-up should be about 300 words.

1. What is the connection between the debt to GDP ratio and pensions?
2. Is the investment philosopy of the CPP Investment Board more similar to David Swensen's or to Norway's pension fund?
3. What is the difference between a sovereign wealth fund and a pension fund?

WEEK 7C: Alternative to Week 7B: RECENT TOPICS: (1) GAMESTOP, (2) SPACs

Required Readings

- James J. Angel, “GameStonk: What Happened and What to do about it,” March 1, 2021, Version 1.2. SSRN Working Paper.
  `https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3782195`
- Minmo Gahng, Jay R. Ritter, Donghang Zhang, Darla Moore, “SPACs,” February 22nd, 2021. SSRN Working Paper.
  `https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3775847`.

Optional Readings

- Wikipedia articles on “Gamestop” and “SPACs”.
- House Financial Services Committee Hearing, `https://financialservices.house.gov/calendar/eventsingle.aspx?EventID=407107`. Click on speaker name to download written statement.
- Gamestop, Online USC panel. `https://online.usc.edu/seminars/gamestop-short-squeeze-risks-economy-trading/`
- Gamestop, Online Georgetown panel. `https://finpolicy.georgetown.edu/retail-investors-shake-up-wall-street-whats-next/#`

Questions for Case Write-up

The write-up should be about 300 words.

1. Was the Gamestop episode primarily driven by institutional asset managers or retail investors?
2. Which of the market reforms discussed by Jim Angel would have the largest effect?
3. Why do companies use SPACs instead of IPOs?
4. Describe the conflict-of-interest problems associated with the structure of SPACs (acording to Gahng, Ritter, Zhang, and Moore paper).