

Venture Capital & the Finance of Innovation

Fall 2012, JMMH 360

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Department of Finance, the Wharton School

This course will focus on the primary activities performed by venture capital professionals, including how they raise capital, how they structure their funds, as well as how they select, fund, and exit high-growth privately-held companies.

- We start by outlining **how venture capital funds are organized**, how and from whom they raise capital, and in what type of firms they typically invest. A good portion of the section will **examine the risk return profile of venture capital** and whether venture capital “beats the market,” whether it lowers risk of the limited partner’s portfolio, and how the great uncertainty associated with growth firms should be priced.
- The **second section** of the course will examine corporate valuation and value drivers. Given the incredible uncertainty associated with high-growth companies, alternative methods such as **key value driver models and comparable transactions** must be employed to triangulate results. Special attention will be given to the valuation process for small, illiquid, high-growth companies versus mature companies. For instance, how do you bound reasonable estimates of revenue growth, operating margins, and capital productivity when little historical data is available?
- The **third section** of the course will examine valuation techniques necessary to **value complex securities** associated with venture capital and high growth companies. Preferred stock held by venture capitalist has conversion features that resemble a combination of debt and equity. Therefore, options models must be employed to determine their economic (versus fully-diluted) value.

Complementary Classes: The class will focus on the financial aspects of valuing and funding high growth companies. A **critical skill** to venture capital that we will cover *only briefly* is screening and selecting potential investments. To develop a well-rounded skill set, I recommend Entrepreneurship (MGMT 801) and Venture Capital and Entrepreneurial Management (MGMT 804).

Reading Material

The course will rely on a textbook and a few supplemental readings (which can be found on webcafe). The textbook can be purchased in the campus bookstore or on Amazon.com:

- Venture Capital and the Finance of Innovation (2nd edition) by Andrew Metrick and Ayako Yasuda, 2011, John Wiley & Sons, Inc, NY.

The course will also rely on chapters from a secondary text:

- Valuation: Measuring and Managing the Value of Companies (5th edition) by Koller, Goedhart, and Wessels, 2010, John Wiley & Sons, Inc, NY.

Chapters from *Valuation* will be provided for you on canvas. Lecture notes will be distributed in class and will also be available on canvas.

In-Class Requirements

Please bring three items to EVERY class: your name tent, the lecture's notes, and a basic calculator. As the semester progresses, please remain diligent. I tend to be relentless with those who come to class empty-handed.

Lecture notes: I strongly recommend using Wharton reprographics (through study.net) to purchase the course lecture notes. We will use the lecture notes to complete problem sets in class. If you prefer to print your own lecture notes, I understand; but trust me, you will be less prepared than your classmates who have a complete well-structured set of notes!

Assignments & Grading

There will be three individual assignments (5% each), two group projects (25% total), and two exams (30% each). For individual assignments, I expect you to work alone and hand in your own work. You can discuss class tools, but not the assignment. For group work, please self-select groups of between 3-5 people, no exceptions. If you have six people, create two groups of three. Also, you can form teams across sections.

Class participation will not formally be scored, but students at the grading cutoffs will be evaluated for their ability to generate an active and positive class environment. The assignment/exam due dates and grading breakdown will be as follows:

	Assignment/Exam	Due Date	Grade
1	Individual Assignment: Portfolio Review	9/24	5%
2	Individual Assignment: LP/GP Contracts	10/3	5%
3	Midterm Exam	10/17, in-class	30%
4	Group Project: Strategic Assessments	10/31	10%
5	Group Project: Private Company Valuation	11/14	15%
6	Individual Assignment: Capital Structure	12/3	5%
7	Final Exam (as assigned by registrar)	Wed 12/19, 6-8pm	30%

Teaching Assistants & Office Hours

We have two teaching assistants for the class. If you have questions concerning assignments or practice exams, please e-mail your primary TA first. If they are out of town, only then reach out to the other TAs. Again, all questions concerning assignments and practice exams will be redirected to TAs. If you have questions about the course notes or content beyond the class, please reach out to me directly.

The teaching assistants are:

The lead teaching assistant is Peter Gajdos. The primary TAs for each section are:

10:30am: Kristen Hughes (last names A-M) and Chi Song (last names N-Z)

12:00pm: Sandesh Shettar <shettars@wharton.upenn.edu>

1:30pm: Jonathan Ching <chingjon@wharton.upenn.edu>

Office Hours will be held:

Wednesday: Professor Wessels 3-5pm in SHDH 242

TBD: Teaching Assistants

Venture Capital and the Finance of Innovation

Course Schedule

	Note	Date	Session Topic	Associated Reading
Section 1: The Limited Partner's Perspective: Venture Capital Funds		9/5	Course Overview	None
	1	9/10 & 9/12	Introduction to Venture Capital: The Venture Capital Cycle & Industry Statistics	Metrick Chapter 1 "It Ain't Broke: The Past, Present, and Future of Venture Capital"
	2	9/17 (will be taped for those celebrating RH)	Raising LP Capital: Organizational Structure and the Limited Partner	Metrick Chapter 2
	3	9/19 (virtual class from London)	Raising LP Capital: Partnership Agreements and GP Compensation	"The Economics of Private Equity Funds," Metrick and Yasuda.
	4	9/24*	Venture Capital Returns: How the CAPM applies to Limited Partners	Metrick Chapter 4
		9/26	No Class: Yom Kippur	None
	5	10/1	Venture Capital Returns: How the CAPM applies to Entrepreneurs	No Reading
	6	10/3*	Venture Capital Returns: Are High Hurdle Rates Justified? Empirical Evidence	Metrick Chapter 3
	7	10/8	Choosing Amongst VCs: Measuring Firm Performance and Persistency of Venture Capital Performance	Metrick Chapter 5
Section II: Valuation and Analysis of High Growth Companies	8	10/10	Screening Startup Opportunities	Metrick Chapter 7
	9	10/15	Key Value Drivers	Valuation 4 th Edition Chapter 3
		10/17*	Midterm Exam	None
	10	10/22	Assessing Value Drivers: The Case of Atricare	Valuation 5 th Edition: Chapter 6
	11	10/24	Value Drivers and Cash Burn	No reading, start the next set!

	12	10/29	Venture Capital Valuation: Mapping Value Drivers to DCF.	Valuation 5 th Edition: Chapters 7, 34. Recommended, but not required: Metrick Chapters 10 -11
	13	10/31	Venture Capital Valuation: Using Comparables (Multiples) to Bound the Valuation	Metrick Chapter 12
Section III: Term Sheets, Capital Structure & Financing Growth	14	11/5	Term Sheets: Matching VC Needs with Entrepreneurial Incentives	Metrick Chapter 8
	15	11/7	Term Sheets: Down Rounds and Anti-Dilution Provisions	"The Venture Capital Anti-Dilution Solution" Wilson Sonsini
	16	11/12	Term Sheets: Security Design and Capital Structure in VC Backed Firms	Metrick Chapter 9
	17	11/14*	Fundamentals of Options Pricing	Metrick Chapter 13
	18	11/19	Valuation of Series A Preferred	Metrick Chapter 14
	19	11/26	Valuation of Series B Preferred	Metrick Chapter 15
	20	11/28	Valuation of Later Rounds: Series C and Beyond	Metrick Chapters 16
	21	12/3*	Angel Financing & Convertible "debt"	TBD
	Hand - out	12/5	Going Public: IPO Process, Book Building & Auctions (<u>time permitting</u> , which is unlikely!)	A Guide to the Initial Public Offering Process (Ellis, Michaely & O'Hara)

* There is an assignment due today!