

Venture Capital & the Finance of Innovation

Spring 2015

Professor David Wessels

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 231/801) and Venture Capital and Entrepreneurial Management (MGMT 264/804).

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 printing the 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 (15% total), 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. You can switch groups between projects, but this is NOT recommended. For classes with multiple sections, you can form groups 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 | 2/9/2015 | 5% |
| 2 | Individual Assignment: LP/GP Contracts | 2/23/2015 | 5% |
| 3 | EXAM I (in class) | 3/4/2015, in-class | 30% |
| 4 | Group Project: Strategic Assessments | 3/25/2015 | 10% |
| 5 | Group Project: Private Company Valuation | 4/13/2015 | 15% |
| 6 | Individual Assignment: Capital Structure | 4/27/2015 | 5% |
| 7 | Final Exam (as assigned by registrar) | Mon 5/7, 3-5pm | 30% |

Teaching Assistants & Office Hours

We have five 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 primary TAs for each section are:

1:30pm: Hernan Gerson (last names A-M) and Tomasz Karasek (last names N-Z)

3:00pm: Vikram Madan (last names A-P) and Matias Melero (last names Q-Z)

4:30pm: Sebastien Arnold (last names A-P) and Matias Melero (last names Q-Z)

Please reach out to your primary TA first. This assures that no one TA is overwhelmed by email. If you do not hear from your primary TA by end of day, only then reach out to your other class teaching assistant.

Office Hours will be held: TBD

Venture Capital and the Finance of Innovation

Course Schedule

| FNCE 250: Venture Capital and the Finance of Innovation | | | | | Version 1 |
|---|------|-------------|--------------------------|--|------------------|
| Class Schedule | | | | | Updated 1/7/2015 |
| Section | Week | Date | Note | Reading | |
| Course | 1 | 1/21 | 0 | Course Overview & The VC Cycle | |
| Introduction | 2 | 1/26 | 1 | Insights from Industry Statistics | |
| Section 1: The Limited Partner's Perspective | | 1/28 | 2 | Raising LP Capital: Organization Structure | |
| | 3 | 2/2 & 2/4 | | No Class | |
| | 4 | 2/9 | 3 | Raising LP Capital: Partnership Compensation | |
| | | 2/11 | 4 | Theory: Risk and Return for LPs | |
| | 5 | 2/16 | 5 | Theory: Risk and Return for Founders | |
| | | 2/18 | 6 | In Practice: Does VC beat the market? | |
| | | 2/20 | 7 | FRIDAY MAKE-UP: Choosing amongst funds | |
| Section 2: Valuation and Analysis of High Growth Companies | 6 | 2/23 | 8 | Screening Startup Opportunities | |
| | | 2/25 | 9 | Key Value Drivers: Theory | |
| | 7 | 3/2 | 10 | Key Value Drivers: Cash Burn | |
| | | 3/4 | n/a | EXAM I | |
| | 8 | 3/16 | 11 | Key Value Drivers: AtriCure | |
| | | 3/18 | 12 | Mapping Value Drivers to DCF: Margin | |
| | 9 | 3/23 & 3/25 | 13 | No Class | |
| | 10 | 3/30 | 14 | Mapping Value Drivers to DCF: Capital | |
| | 4/3 | 15 | FRIDAY MAKEUP: Multiples | | |
| Section 3: Term Sheets, Capital Structure & Financing Growth | | 4/1 | 15 | Term Sheets: Entrepreneurial Incentives | |
| | 11 | 4/6 | 16 | Term Sheets: Capital Structure | |
| | | 4/8 | 17 | Term Sheets: Down Rounds | |
| | 12 | 4/13 | 18 | Fundamentals of Options Pricing | |
| | | 4/15 | 19 | Valuation of Series A | |
| | 13 | 4/20 | 20 | Valuation of Series B | |
| | | 4/22 | 21 | Valuation of Later Rounds (time permitting) | |
| 14 | 4/27 | 22 | Angel Financing | | |
| | | | | HBS: The Changing Face of Angel Investing | |
| Course Review | | 4/29 | n/a | Course Review | |
| | | | | No Reading | |