2220 - Entrepreneurial Finance and Venture Capital

Francisco Queiró
Nova School of Business and Economics

Lecture #1

What is Entrepreneurial Finance?

- Corporate Finance: large, publicly traded firms, with access to capital markets
- Entrepreneurial Finance: new, privately held firms, with high growth potential

The standard corporate finance toolkit

- How to evaluate an investment opportunity

The standard corporate finance toolkit

- How to evaluate an investment opportunity
  - Project cash flows
  - Evaluate risk $\rightarrow$ cost of capital
  - Calculate NPV

The standard corporate finance toolkit

- How to evaluate an investment opportunity
  - Project cash flows
  - Evaluate risk $\rightarrow$ cost of capital
  - Calculate NPV

- How to fund it

The standard corporate finance toolkit

- How to evaluate an investment opportunity
  - Project cash flows
  - Evaluate risk $\rightarrow$ cost of capital
  - Calculate NPV

- How to fund it
  - Interest tax shields, costs of financial distress
  - Optimize capital structure $\rightarrow$ target debt-to-equity ratio

The standard corporate finance toolkit

- How to evaluate an investment opportunity
  - Project cash flows
  - Evaluate risk $\rightarrow$ cost of capital
  - Calculate NPV
- How to fund it
  - Interest tax shields, costs of financial distress
  - Optimize capital structure $\rightarrow$ target debt-to-equity ratio
- Investment and financing decisions are largely independent

The standard corporate finance toolkit

- How to evaluate an investment opportunity
  - Project cash flows
  - Evaluate risk $\rightarrow$ cost of capital
  - Calculate NPV
- How to fund it
  - Interest tax shields, costs of financial distress
  - Optimize capital structure $\rightarrow$ target debt-to-equity ratio
- Investment and financing decisions are largely independent
  - Modigliani-Miller
  - Exceptions: taxes, transaction costs, asymmetric information

Some key differences in entrepreneurial finance

- How to evaluate an investment opportunity
  - Greater emphasis on identifying upside potential than detailed financial projections
  - Qualitative information plays a key role (the team, the product, etc)
  - Valuation: the VC method, importance of real options

Some key differences in entrepreneurial finance

- How to evaluate an investment opportunity
  - Greater emphasis on identifying upside potential than detailed financial projections
  - Qualitative information plays a key role (the team, the product, etc)
  - Valuation: the VC method, importance of real options
- How to fund it
  - Deals use convertible securities, rather than straight equity or debt
  - Funding is done in stages
  - Greater emphasis on incentives and control rights (e.g. board seats, covenants)

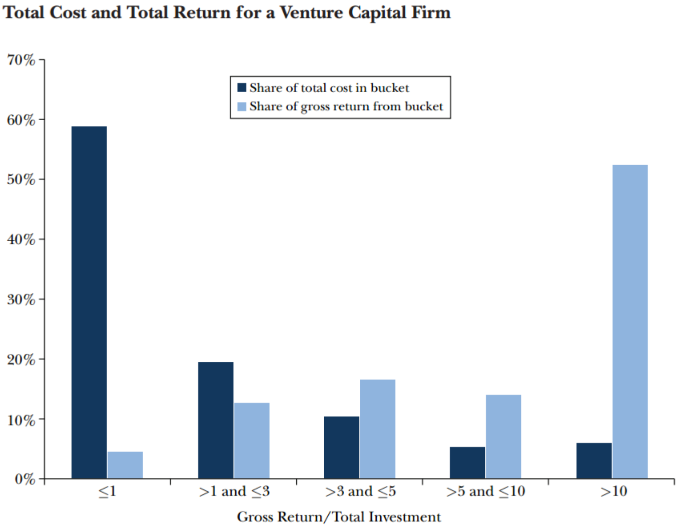
Some key differences in entrepreneurial finance

- How to evaluate an investment opportunity
  - Greater emphasis on identifying upside potential than detailed financial projections
  - Qualitative information plays a key role (the team, the product, etc)
  - Valuation: the VC method, importance of real options
- How to fund it
  - Deals use convertible securities, rather than straight equity or debt
  - Funding is done in stages
  - Greater emphasis on incentives and control rights (e.g. board seats, covenants)
- Value of investment depends strongly on funding decisions
  - How much money you raise
  - When you raise it
  - Who you it raise from
  - Under what terms

What underlies these differences?

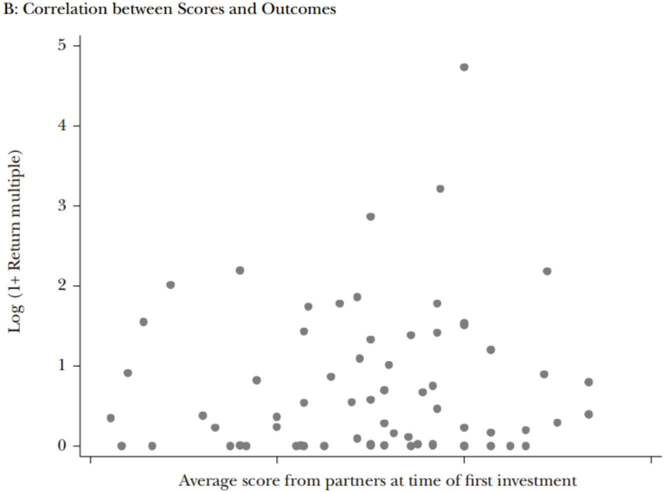
1. Extremely uncertain outcomes and concentrated returns
2. Intangible assets (ideas, human capital)
3. Asymmetric information
4. Investor value added

Uncertain outcomes and concentrated returns



Source: Kerr, Nanda and Rhodes-Kropf. 2014. "Entrepreneurship as Experimentation" Journal of Economic Perspectives

Uncertain outcomes and concentrated returns



Source: Kerr, Nanda and Rhodes-Kropf. 2014. "Entrepreneurship as Experimentation" Journal of Economic Perspectives

Bessemer Venture Partners

Famous pivots

Intangible assets

- Tangible assets (land, buildings, machines) can be repossessed by investors and sold for other uses

Intangible assets

- Tangible assets (land, buildings, machines) can be repossessed by investors and sold for other uses

- In new ventures value tends to be concentrated in intangible assets
  - Ideas, prototypes
  - Entrepreneur's human capital (expertise, ability, experience, etc)
  - Intellectual property (e.g. patents)

Intangible assets

- Tangible assets (land, buildings, machines) can be repossessed by investors and sold for other uses

- In new ventures value tends to be concentrated in intangible assets
  - Ideas, prototypes
  - Entrepreneur's human capital (expertise, ability, experience, etc)
  - Intellectual property (e.g. patents)

- If venture fails
  - Intangible assets are either likely to be worthless (ideas) or investors cannot repossess them (people)
  - Patents can be repossessed but are often hard to value (could be worthless if the venture fails)

Asymmetric information

- Adverse selection: entrepreneurs and current investors know more about business and themselves than outsiders do
  - How good is the product/service?
  - What do customers really think about it?
  - How good are the entrepreneurs themselves? Do they have what it takes?

Asymmetric information

- Adverse selection: entrepreneurs and current investors know more about business and themselves than outsiders do
  - How good is the product/service?
  - What do customers really think about it?
  - How good are the entrepreneurs themselves? Do they have what it takes?

- Moral hazard: investors cannot observe everything that entrepreneurs do
  - How hard are they working?
  - What risks are they taking?

Asymmetric information

- Adverse selection: entrepreneurs and current investors know more about business and themselves than outsiders do
  - How good is the product/service?
  - What do customers really think about it?
  - How good are the entrepreneurs themselves? Do they have what it takes?
- Moral hazard: investors cannot observe everything that entrepreneurs do
  - How hard are they working?
  - What risks are they taking?
- These affect corporate finance as well, but are central in entrepreneurial finance

Investor value added

- Investors are often former entrepreneurs in the same field, and have valuable
  - Expertise
  - Experience
  - Networks

Investor value added

- Investors are often former entrepreneurs in the same field, and have valuable
  - Expertise
  - Experience
  - Networks

- As a result, they tend to be heavily involved in the businesses they invest in
  - Take board seats
  - Offer advice (operational, organizational, marketing, financial, etc)
  - Introduce potential clients, suppliers, investors, employees, etc
  - Monitor performance

Why study entrepreneurial finance?

- Only about 0.16% of all new businesses in the U.S. get VC funding

Why study entrepreneurial finance?

- Only about 0.16% of all new businesses in the U.S. get VC funding
- Yet, among all public companies founded between 1974-2015, VC-backed firms account for
  - 42% of Initial Public Offerings (IPOs)

Why study entrepreneurial finance?

- Only about 0.16% of all new businesses in the U.S. get VC funding
- Yet, among all public companies founded between 1974-2015, VC-backed firms account for
  - 42% of Initial Public Offerings (IPOs)
  - 63% of total market cap

Why study entrepreneurial finance?

- Only about 0.16% of all new businesses in the U.S. get VC funding
- Yet, among all public companies founded between 1974-2015, VC-backed firms account for
  - 42% of Initial Public Offerings (IPOs)
  - 63% of total market cap
  - 86% of Research and Development (R&D)

Why study entrepreneurial finance?

- Only about 0.16% of all new businesses in the U.S. get VC funding
- Yet, among all public companies founded between 1974-2015, VC-backed firms account for
  - 42% of Initial Public Offerings (IPOs)
  - 63% of total market cap
  - 86% of Research and Development (R&D)
- Moreover, VC-backed R&D produces 3-4x more patents per $ invested

Why study entrepreneurial finance?

- Only about 0.16% of all new businesses in the U.S. get VC funding
- Yet, among all public companies founded between 1974-2015, VC-backed firms account for
  - 42% of Initial Public Offerings (IPOs)
  - 63% of total market cap
  - 86% of Research and Development (R&D)
- Moreover, VC-backed R&D produces 3-4x more patents per $ invested
- VC funding plays a key role in high growth entrepreneurship & innovation

Sources:
Will Gornall and Ilya Strebulae, "The Economic Impact of Venture Capital: Evidence from Public Companies," Stanford GSB Research Paper 15-55, (2015).
Kortum, Samuel, and Josh Lerner. "Assessing the Contribution of Venture Capital to Innovation." RAND Journal of Economics, 2000, 674-692.

Top 10 global companies by market cap

Rank		Name	Market Cap
	1	Microsoft MSFT	$3.045 T
	2	Apple AAPL	$2.883 T
	3	Saudi Aramco 2222.SR	$2.001 T
^1	4	Amazon AMZN	$1.777 T
⌄1	5	Alphabet (Google) GOOG	$1.759 T
	6	NVIDIA NVDA	$1.631 T
	7	Meta Platforms (Facebook) META	$1.229 T
	8	Berkshire Hathaway BRK-B	$847.61 B
	9	Eli Lilly LLY	$635.73 B
^1	10	TSMC TSM	$598.20 B


VC
The new superhero
of the modern world.

Course logistics 1/2

- Instructor: Francisco Queiró (francisco.queiro@novasbe.pt, office: D220)
- Office hours: Wednesday 5-6pm
- Teaching Assistants:
  João Delgado (joao.c.delgado@novasbe.pt)
  Pedro Carvalho (pedro.carvalho43@gmail.com)
- Moodle enrollment keys
  - Section A: 2220A
  - Section B: 2220B
  - Section C: 2220C

Course logistics 2/2

- Course materials: cases and problem sets, supplemented by lecture notes and articles. All will be posted on course website
  - Always bring cases to class
- Guest speakers (will have to join sections)
- Supplementary texts (optional):
  - Metrick and Yasuda (2021). Venture Capital and the Finance of Innovation
  - Wasserman (2013). The Founder's Dilemmas: Anticipating and Avoiding the Pitfalls That Can Sink a Startup
  - Marco Da Rin and Thomas Hellmann (2020). Fundamentals of Entrepreneurial Finance
  - Constance Bagley and Craig Dauchy (2012). The Entrepreneur's Guide to Business Law
  - Feld and Mendelson (2011). Venture Deals: Be Smarter than your Lawyer and Venture Capitalist
- Prerequisite: corporate finance or financial management

Grading

- Class participation: 20%
- Case memos: 10%
- Pitching contest: 10%
- In class tests (individual): 15%
    - Test 1: March 15th
    - Test 2: April 23rd
- Final exam: 45%

Class participation

- Course organized around analysis of case studies and problems in class
- To reward good discussion, participation will be 20% of grade
- TAs will help keep a record of your participation

- This requires that you
  - Prepare well for each class (around 2 hours)
  - Bring a name card to help us remember who said what

- Things to keep in mind
  - The quality of discussion and learning depends on your preparation
  - No clear-cut solutions; cases are often ambiguous like real world

Some tips for participation

- Examples of good participation
  - Show your work (no need to "crack" the case)
  - Ask a good question
  - Bring a different point of view into discussion
  - The goal is to contribute to collective learning, more than having "right answer"
- How to prepare
  - Use the assignment questions in the memo
  - Think about the major decisions facing the protagonists
  - Be ready to walk through any calculations
- You will receive feedback mid-semester
- Absences
  - No adjustment to participation grade unless you have 4 or more justified absences over semester

Case memos

- You should submit a 1-2 page memo about each case or problem set, by 10:00am the day of class
- Assignment questions will be provided
- May work in groups of up to 4
- Please submit memos on moodle (one person submits, add names at the top)
- Keep it simple: bullet points fine
- What we look for in case memos
  - Did you read the case?
  - Did you think about it? What problem(s) is the protagonist facing?
  - Basic analysis; run some numbers if necessary
- Graded satisfactory/unsatisfactory
- You can miss up to 3 memos with no penalty to your grade

Startup pitching

- Choose an existing startup (list will be provided) or come up with your own idea
- Pitch it to the class as a founder pitching to investors
- Rest of the class plays role of investors, asking questions
- Grade = my evaluation + class vote
- Work in small groups
- Will take place at the end of semester, more details soon
- Some people have pitched startups they were actually planning to launch, and developed the project into their master thesis

Who this class is for

- Take this class if you are interested in
  - Applying financial tools and concepts to real world scenarios
  - Learning how to evaluate projects in uncertain and ambiguous contexts
  - Learning about how startups are financed
  - Learning about the venture capital industry

Who this class is for

- Take this class if you are interested in
  - Applying financial tools and concepts to real world scenarios
  - Learning how to evaluate projects in uncertain and ambiguous contexts
  - Learning about how startups are financed
  - Learning about the venture capital industry

- Do not take this class if you are interested in
  - Advanced mathematical models and tools

Course outline

- Evaluating investment opportunities
    - People, market, product, business model and context
    - Financial implications of business models
    - Valuation
    - Experimentation, real options and multistage finance

Course outline

- Evaluating investment opportunities
  - People, market, product, business model and context
  - Financial implications of business models
  - Valuation
  - Experimentation, real options and multistage finance

- Assessing financing alternatives
  - Deal structure and terms
  - Venture capital
  - Seed stage finance: angels, accelerators

Course outline

- Evaluating investment opportunities
  - People, market, product, business model and context
  - Financial implications of business models
  - Valuation
  - Experimentation, real options and multistage finance
- Assessing financing alternatives
  - Deal structure and terms
  - Venture capital
  - Seed stage finance: angels, accelerators
- Realizing returns
  - Selling the venture vs IPO vs staying private

Some basic terminology: key players 1/2

- Venture Capitalists
  - Professional investors (General Partners) who raise funds from and invest on behalf of other investors (Limited Partners), including pension funds, foundations, family offices, etc
  - May invest across all stages, but typically seek "home-run" potential
- Corporate Venture Capital
  - Corporations who set up their own venture arms (e.g. Google Ventures)
  - Normally tied to strategic goals (e.g. access new technologies, synergies)

Some basic terminology: key players 2/2

- Angels
  - Wealthy individuals who invest on their own behalf
  - Make smaller investments and invest in earlier stages than VCs
  - Range from unsophisticated (family, friends) to highly sophisticated (former entrepreneurs or investors with deep expertise)

- Incubators/Accelerators
  - Programs intended to mentor and support startups
  - Typically take equity in exchange for small investment plus participation in program

Some basic terminology: stages of investment

- Pre-seed
  - Earliest stage of funding. Small investment (e.g. $10,000 to $100,000) to support exploration of an idea, prototyping, recruiting key staff, etc
- Seed
  - Larger investment, to support start of operations
  - Firms already have a prototype, business plan, team in place, etc
- First-stage or Series A
  - Usually provided to ongoing businesses, who have a working product, an organization and likely some revenues, though still unprofitable
  - Often meant to establish and support marketing and sales capabilities

Some basic terminology: stages of investment

- Second, third, etc or Series B, C, etc
  - Support growth of tested ventures
  - Usually meant to finance expansion of working capital and fixed assets needed to support growth of a profitable business model
- Bridge financing
  - Support a successful company as it prepares for next funding round or IPO
  - Might finance ongoing capital needs or perhaps buy out earlier stage investors who want to liquidate
- Restart financing
  - Emergency funds for a troubled venture, often at a price well below previous rounds, with the expectation of turning it around

A framework for evaluating new ventures

1. The opportunity
    - The market
    - The product
    - The business model
2. The team
3. The context
4. The deal $\rightarrow$ will discuss in second part of course

Source: "Some thoughts on business plans" by William Sahlman
(available on course website)

Opportunity: the market

- What is the relevant market? What problem are you solving?

- Is the market for the venture large or rapidly growing?
  - Large: upside has to be attractive enough to compensate for risk
  - Growing: easier to compete than in a stagnant market

- How attractive is it?
  - Competitive landscape
  - Barriers to entry

Opportunity: the product

- What is the value proposition?
- How much better is that proposition than the competition? Will customers bother to switch?
- How will competitive advantage be sustained, i.e. what is the moat?
    - Scale effects?
    - Network effects?
    - Switching costs?
    - Intellectual property?
    - Branding?

Opportunity: the business model

- How will the product be priced?
- How much does it cost to produce and deliver?
- How much does it cost to acquire a customer?
- How much does it cost to support and retain a customer?
- When do you have to buy and pay for resources (supplies, people)?
- How long does it take to acquire customers and when do they pay?
- How much capital equipment do you need?
- What are the implications for funding?

The team

- Who are the founders? What are their motivations?
- What have they accomplished in the past?
- What skills do they have? Who else needs to be on the team?
- Do they know/are they known in the industry? What is their reputation?
- How committed are they to the venture? Have they split equity appropriately?
- How will they react to adversity?
- How well do they work together?

The context

- What is the macroeconomic context?
- What is the regulatory framework and how is it evolving?
- What does the funding environment look like?

Which one do you think is more important?

- The market
- The product
- The business model
- The team

Old debate among venture capitalists

- Bet on the horse (market, product and business model)?

- Or the jockey (the team)?

- Don Valentine (founder of Sequoia Capital):
  - Find markets with high potential
  - Have a great technology
  - Put management in place as needed

- Cisco was turned down by other VCs for having a weak team
  - Valentine invested 2 million; his investment was worth 6 billion seven years later

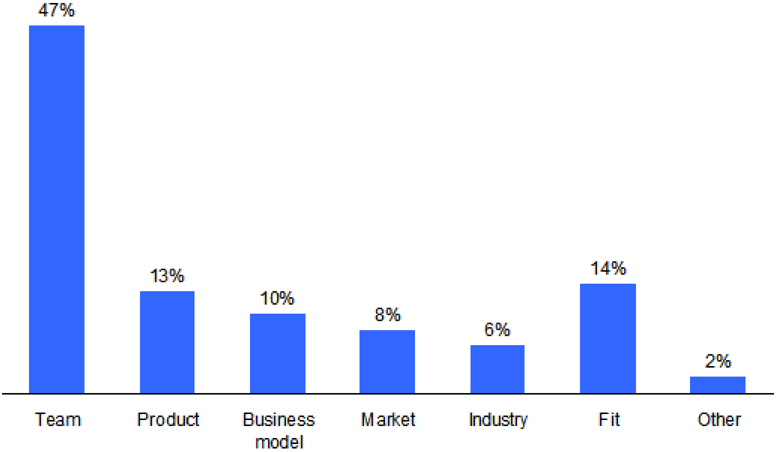
- Arthur Rock (early investor in Fairchild Semiconductor, Apple and Intel):
  - "I invest in people, not ideas"
  - "Nearly every mistake I have made has been because I picked the wrong people, not the wrong idea"
  - "If you can find good people, if they're wrong about the product they'll make a switch"

What do venture capitalists in general think?

- Gompers et al. 2020. How Do Venture Capitalists Make Decisions? Journal of Financial Economics

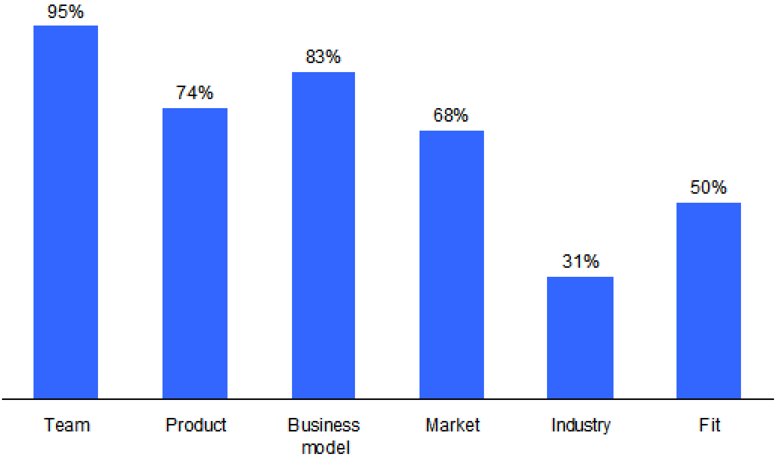
- Survey of 885 VCs at 681 firms about how they make decisions
  - Deal sourcing
  - Investment decisions
  - Valuation
  - Deal structure
  - Post-investment value-added
  - Exits
  - Internal organization of firms
  - Relationships with limited partners

Most important factor when deciding to invest



Source: Gompers et al. 2016. How Do Venture Capitalists Make Decisions? National Bureau of Economic Research Working Paper

Important factors when deciding to invest



Source: Gompers et al. 2020. How Do Venture Capitalists Make Decisions? Journal of Financial Economics

Next class

- First case discussion: “Athleta”
- Case and assignment questions are available on course website
- Submit your 1-2 page memos on moodle
- Bring case and name tags
- Additional reading: “Some thoughts on business plans” by William Sahlman