

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 → 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 → cost of capital
 - ▶ Calculate NPV
- How to fund it
 - ▶ Interest tax shields, costs of financial distress
 - ▶ Optimize capital structure → target debt-to-equity ratio

The standard corporate finance toolkit

- How to evaluate an investment opportunity
 - ▶ Project cash flows
 - ▶ Evaluate risk → cost of capital
 - ▶ Calculate NPV
- How to fund it
 - ▶ Interest tax shields, costs of financial distress
 - ▶ Optimize capital structure → 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 → cost of capital
 - ▶ Calculate NPV
- How to fund it
 - ▶ Interest tax shields, costs of financial distress
 - ▶ Optimize capital structure → 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

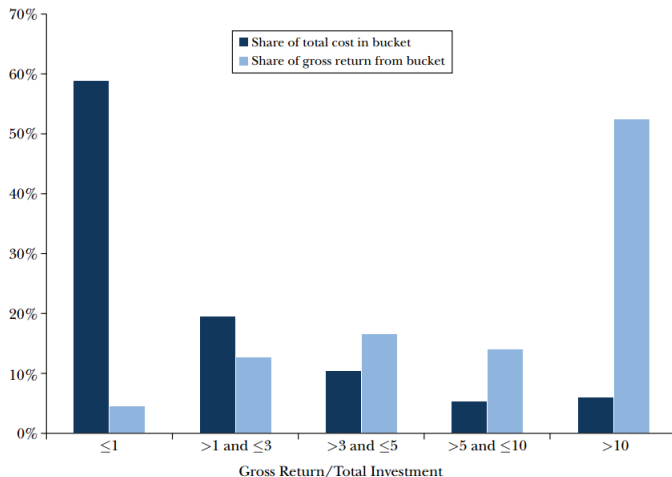
- How to evaluate an investment opportunity
 - ▶ Greater emphasis on identifying upside potential than detailed financial projections
 - ▶ Qualitative information plays a key role (the team, the product, etc)
 - ▶ Valuation: the VC method, importance of real options
- How to fund it
 - ▶ Deals use convertible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

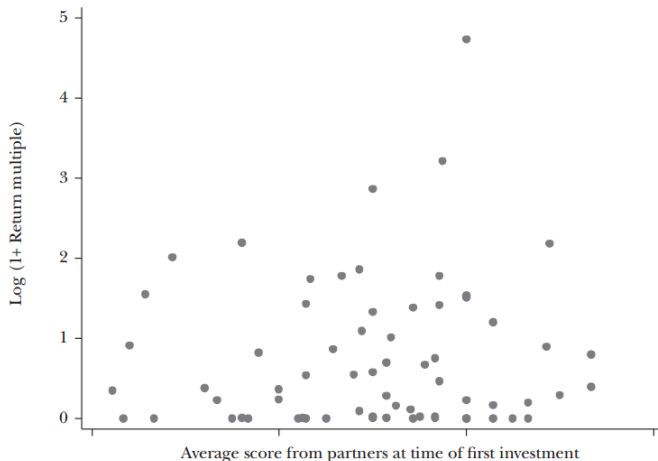
Total Cost and Total Return for a Venture Capital Firm



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

Uncertain outcomes and concentrated returns

B: Correlation between Scores and Outcomes



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

	📍	Name	💎	Market Cap
1		Apple AAPL		\$3.548 T
2		Microsoft MSFT		\$3.085 T
3		NVIDIA NVDA		\$2.940 T
4		Alphabet (Google) GOOG		\$2.504 T
5		Amazon AMZN		\$2.499 T
6		Saudi Aramco 2222.SR		\$1.794 T
7		Meta Platforms (Facebook) META		\$1.746 T
8		Tesla TSLA		\$1.301 T
9		TSMC TSM		\$1.085 T
10		Broadcom AVGO		\$1.037 T



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.carvalho@novasbe.pt)
- 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 5
- 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 → 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

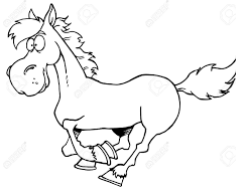
Old debate among venture capitalists

- 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

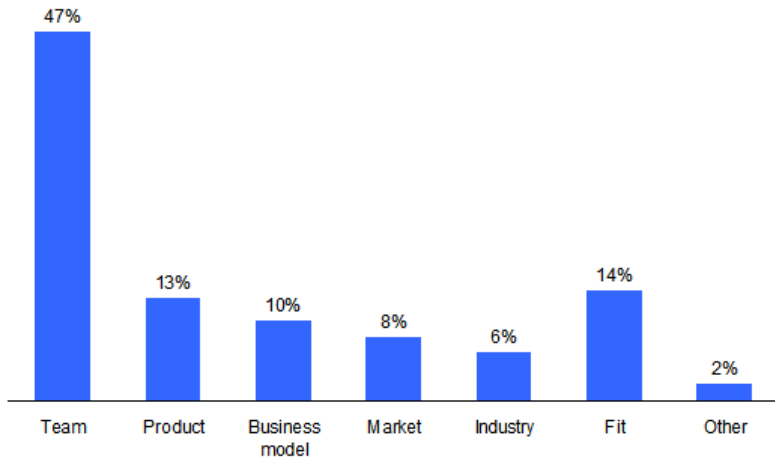


- Arthur Rock (early investor in Fairchild Semiconductor, Apple and Intel):
 - ▶ "I invest in people, not ideas"
 - ▶ "Nearly every mistake I have made has been because I picked the wrong people, not the wrong idea"
 - ▶ "If you can find good people, if they're wrong about the product they'll make a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

What do venture capitalists in general think?

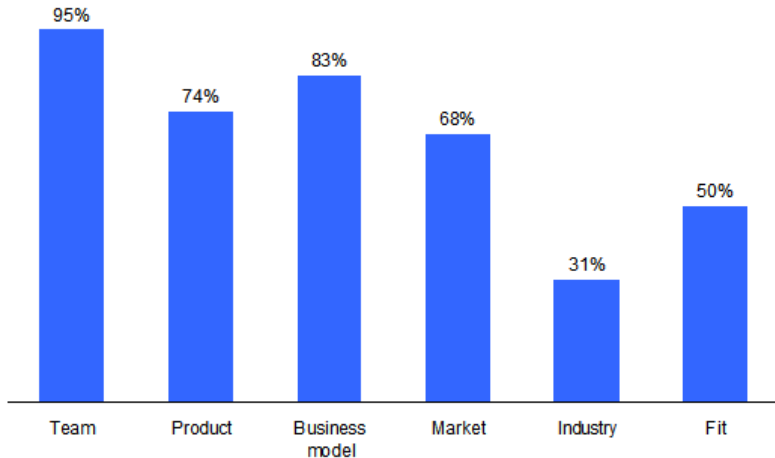
- Gompers et al. 2020. How Do Venture Capitalists Make Decisions? Journal of Financial Economics
- Survey of 885 VCs at 681 firms about how they make decisions
 - ▶ Deal sourcing
 - ▶ Investment decisions
 - ▶ Valuation
 - ▶ Deal structure
 - ▶ Post-investment value-added
 - ▶ Exits
 - ▶ Internal organization 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