**Academic Entrepreneurship for Medical and Health Scientists •
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Seeking Venture Capital Investment

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Topic Relevance by Timeline

Summary

- Venture capital (VC) firms exchange cash for equity or equity-like securities.
- Venture capital funding most often occurs in the early to middle stages of a company, before an acquisition or an initial public offering. Typically, VC firms make a relatively large investment, ranging from 1 to 30 million dollars, though in more recent years, “micro-VCs” that write smaller checks have become more common. Often, a company will raise money from several venture capital firms, either simultaneously or in subsequent transactions.
- Investors expect a 3-10x+ return on investment for any given investment, depending on the stage of the company at the time of investment.
- Venture capital firms may protect themselves by retaining the right to invest in the future, by protecting their equity from dilution, and through special voting rights including blocking rights on certain corporate actions and often through representation on the Board of Directors.
- Venture capital investment term sheets typically set a new valuation of the company.

Introduction

A startup company may become interested in seeking venture capital investment at a variety of stages in the startup lifecycle. Historically, VCs were most likely to get involved at the commercialization stage, frequently following investment from friends and family and/or angel investors who have funded early product development. However, in more recent years, “seed” and even “pre-seed” VC funds have been created to invest in companies prior to commercialization, during the product development or even ideation stages. It should be noted that life sciences companies have always been an exception, as commercialization, particularly of pharmaceutical companies, often requires millions of dollars of funding and years of development and clinical testing that are typically funded by VCs. Acceptance of VC funding creates an intermediate to long-term relationship between a company and a VC firm, wherein the

VC firm may exchange cash for equity and decision-making power ([Mason](#)). It is rare for a company to only raise capital from a VC firm once. More often, companies raise sequential rounds of capital, ideally with subsequent rounds purchasing smaller amounts of equity relative to the capital raised, to reflect increasing value in the company. These subsequent rounds may be led by VC firms that have already invested in the company (referred to as “inside rounds”) or by new investors (referred to as “outside rounds”). VC firms do not automatically invest in subsequent rounds in their portfolio companies, but instead will expect certain returns on investment (ROIs) and set specific milestones that must be met to ensure future investment. The relationship between a company and a VC firm ends at the liquidity event, which occurs when the company makes an IPO, is acquired, or fails during the commercialization stage.

What Is a VC?

A VC firm consists of one or more professionals who invest third-party capital in development- or growth-stage companies. These investments are typically made via a series of funds, which are most often ten-year-partnerships. Each fund is comprised of a general partner (GP, which is the VC firm or a legal affiliate) and limited partners (LPs). The GPs are responsible for direct management of the fund, while LPs primarily contribute the capital for the fund and generally have no decision-making authority. The funds most often make new investments only during the first few years of their operations, with subsequent years reserved for follow-on investments in existing portfolio companies and sale of portfolio securities. Once the new investment period of a fund has concluded, in order for the VC firm to continue making new investments, it has to raise a new fund. This means VC firms often have several active funds at once, with one making new investments and one or more managing out older portfolios. Generally, VCs prefer not to invest “cross funds,” meaning that if a VC firm invests in a company from a particular fund, they will generally invest in that company only from the same fund in the future, rather than using other funds that may create a conflict of interest. Returns are expected to be on the order of 20% or greater on an annualized compounding basis. Once LPs have received their initial investments back, profits on the fund are typically shared, with the GP receiving 20% of the profit and LPs receiving 80% of the profit. In addition, a small portion (typically around ~2% annually) of the fund is used for VC firm operations, salaries, etc. Investment professionals at VC firms come from a variety of backgrounds, including CEOs and company founders, executives from larger technology companies, and, less often,

people with traditional finance backgrounds, such as investment bankers. LPs can be institutions such as endowments, pension funds, and foundations, high-net-worth individuals, or government agencies. A VC firm typically specializes in one or more industries or geographies, so that the GP can select promising companies and provide advice germane to their field of expertise. A VC is concerned with creating a robust “portfolio,” which contains all the companies in which a VC is invested. The term “exiting” is used to describe the event wherein a VC concludes its investment in a particular company. Most often, this exit happens when the company is acquired by another company or when the company has an Initial Public Offering (IPO) and the fund is able to sell its shares on the public market. Less frequently, VCs are able to sell stock in secondary transactions, either to other minority investors or back to the company. Since a VC firm will have different priorities at different times in its fund life cycle, it is very important for a startup founder and/or CEO to be cognizant of the stage of the VC fund’s life cycle when seeking investment. There are approximately 2,000 VC companies, compared to approximately 200,000 angel investors.

What Kind of Investment Does a VC Make?

Figure 1
Sources of Seed Funding.

By the time a founder approaches a VC firm, often the company has already received seed funding from one or more of the following sources: personal bootstrapping, friends and family, incubators, governments, foundations, crowdfunding, or angel investors ([Figure 1](#)). Typically, VC firms will seek to invest alongside other VC firms, though some larger firms prefer to invest alone, and seed and pre-seed VCs often invest alongside the capital sources discussed above. An investor who negotiates the terms of the investment with the company is designated the “lead” with investors

afterward generally referred to as “followers.” The lead is often, but not always, the largest investor and has disproportionate influence, including often having the power to select invest-appointed members of the company’s Board of Directors. Usually, the lead investment is the most difficult to secure since investors make a leap of faith in the company and often do the most due diligence, typically sharing their diligence findings with subsequent investors to help the company build an investor syndicate and raise sufficient capital. Fundamentally, a VC firm is exchanging cash for equity and protecting that investment with decision-making authority. In life sciences investments, it is more common for cash to be disbursed at particular intervals triggered by the achievement of pre-negotiated milestones, as opposed to all at once (see the chapter “[Writing the Business Plan for a Life Science Startup](#)”). This structure is seen much less frequently in investments in IT companies. The proposed exchange is delivered to the founder in the form of a term sheet that summarizes the economic and noneconomic terms on which the VC is willing to invest. While term sheets are formally nonbinding, a deal will typically close on the agreed-upon terms, and attempts by either side to “re-trade” or alter those terms, absent material new information discovered in the final due diligence, are considered bad behavior in the industry.

Different VC firms have different ownership targets in the companies in which they invest, depending on the amounts they typically invest, the stages of the companies they invest in, and the firm’s willingness to make follow-on investments. Historically, many VCs have targeted 20% ownership in a company. The typical investment made by a VC is anywhere from \$3 million to \$30 million but can vary greatly, with newer “micro VCs” investing below \$1 million as well. In the late 2010s, a new wave of “mega VCs” has also emerged, most notably the Softbank Vision Fund, which will put far larger amounts of capital to work in later stage companies. Investment size depends on the round of funding being sought and the stage of the company, with earlier rounds typically being smaller. Most often, investments are structured as preferred equity, which provides investors both with ownership in the company as well as special economic and control rights beyond what common stock would provide. For early-stage financings or short-term financings, convertible debt or other convertible securities are sometimes used instead of equity, which can provide equity-like returns with less documentation and legal cost, though it often means less protection for investors as well. When rounds are structured as preferred equity, these rounds are often labeled alphabetically as Series A, Series B, Series C, etc. However, other than symbolizing chronology, there is no legal meaning assigned to these labels, and Series A stock in one company may be very different from Series A stock in a different

company. Depending on the exit strategy, the company may get acquired before series C and D are raised. An alternative to series C or D rounds is to make an initial public offering if the company does not seek an acquisition exit. Typically, as a company makes progress and the round label progresses from A to D, the investment size and valuation increase and the risk to the VC firm decrease. VC firms typically like to provide a company with 12–18 months of runway with each new round of financing. The runway is the amount of time a company theoretically has before running out of money, based on its burn rate—the rate at which it spends cash. A number of factors can impact the burn rate and the runway over time, including over- or underperformance on sales, the need to hire unanticipated staff, and other factors. Ideally, a company has enough time to make substantial business progress after each financing round, such that investors in the next round will be inclined to pay a significantly higher price per share.

What Companies Is a VC Firm Looking For?

A VC firm is looking for a company within its domain of expertise. In addition, VCs may be focused on early- or late-stage companies. Early-stage life sciences companies may be doing preclinical, Phase 1, or Phase 2 trials, while IT companies may have some product usage and perhaps some revenue. Late-stage companies often have demonstrated sales, and, in the case of life sciences companies, are post-regulatory approval or have made significant progress in late-stage clinical trials. A VC firm seeks to return three to ten times its investment in a given company in three to ten years, depending on the stage of the company at the time of investment. This goal is a relatively high return in a short timeframe, so VCs are more willing to invest in riskier companies than public market investors and most corporations are, but typically less risky than the companies angel investors might invest in. In order to drive these returns, VC firms must focus on very large opportunities, often in excess of \$1 billion either in terms of current market size or projected size. In the case of medical devices, some VCs prefer devices on the 510(k) Food and Drug Administration (FDA) approval pathway due to the time, effort, and additional money required by the premarket approval (PMA) pathway, though others prefer the PMA pathway due to the higher barrier to entry for competitors and greater amounts of efficacy data at the time of approval (see the chapter “[FDA Device Regulation: 510\(k\), PMA](#)”). To read more about these FDA approval pathways, please see the chapters in the [IP/Reg section](#) on this topic.

What Are Milestones?

The VC firm may require that certain milestones be met in order for continued disbursement of cash. These milestones are typically laid out in the operating plan. This is one of the primary vehicles by which a VC firm can direct the progress and strategy of one of its constituent companies, though it is far more common in life sciences companies than outside of that space. Achievement of each milestone represents a de-risking event in the company; that is, the company demonstrates some aspect of technical, product, or company feasibility that improves the likelihood of success of that company. Sometimes, but not always, milestone-driven financings carry a higher price per share for the later disbursements. For pharmaceutical companies, many VCs will seek to encourage the sale of the company after Phase 2 testing, at which point a larger biotech company can conduct the Phase 3 studies. For most biomedical interventions, the process from initial discovery to conclusion of Phase 2 testing may take five to seven years or more, which is a typical duration of investment for most VCs.

What Are the Stages of Starting a Relationship Between a VC and a Company?

The stages of starting a relationship between a VC and a company are as follows, in chronological order: triage, initial due diligence, heavy due diligence, investment negotiations, investment closing, and collaboration ([Figure 2](#)). In triage, communication is opened between the VC firm and the company. Typically, the pitch deck—a term for a polished, concise slide deck overview of the company specifically prepared for investor meetings—is delivered at this time. Before or shortly after the pitch is given, the investor performs light due diligence by discussing the industry and the company with partners, VC firm founders, company references, and independent consultants. If the VC firm maintains interest in investing, systematic, heavy due diligence begins. In the heavy stage, the VC firm might bring in scientific or technical experts to evaluate the product and intellectual property. They will work with the company founders to agree on an operational plan for how the money should be spent, they will do personal reference checks on the founders, and they will talk to both current and prospective customers of the company. In the case of a life sciences company, the VC firm will also investigate appropriate regulatory pathways and

reimbursement issues (see the chapter “[Reimbursement Strategies and CPT Codes for Device Development](#)”). At this time, the company should also conduct due diligence on the VC firm as well as examine other potential VCs. The due diligence results will inform the investment decision, at which time, if the VC firm would like to proceed with investing in the company, a term sheet will be generated. During investment closing, final due diligence is performed, during which contracts, employees, intellectual property, and more come under scrutiny and may be adjusted further before a final deal is struck. Once the investment has been completed, the two sides enter the collaboration phase, where they are now working together to maximize the value of the company, often with a representative of the VC firm on the company’s board of directors influencing the strategic direction of the company.

Figure 2

The Stages of Starting a Relationship Between the VC and the Company.

Valuation

VC investment both relies upon and constitutes a valuation of the company. Valuation depends on a number of factors: previous valuations of similar companies called “comparables,” the quality of the management team, and the stage and trajectory of the company. This is often “sanity checked” with financial models that estimate a range of potential exit sizes for the company and future ownership levels, to ensure that these terms would drive appropriate risk-adjusted returns. On a practical level, valuation is also driven in part by competition. Companies with multiple interested investors can often obtain higher valuations than peers with a single offer. Valuation is often expressed as a “pre-money,” ostensibly the value of the company immediately before the investment (often, the “post-money valuation” is also discussed, which is simply the pre-money plus the new investment size). This is effectively shorthand for the percentage of the company the new money is purchasing. For example, a \$1 million investment at a \$4 million pre-money (\$5 million post-money) would be purchasing 20% of the company. As the company raises more capital, the ownership of the founders in the company will decrease, which reflects a process called dilution. If the founder typically owns 90%–100% of the company at its inception, they may expect to own around 15% at the time of the liquidity event. The balance between runway and

dilution is an important one. It is key for a founder to have a sufficient cushion to be able to last from one valuation cycle to the next, but it is equally important not to take more cash than is needed, as this prematurely dilutes the founder's equity.

Obtaining Expert Counsel

The most critical stage of an interaction with a VC firm that requires expert counsel is involved in the negotiations over the term sheet. It is best to assume the term sheet is unalterable once agreed upon, so all negotiations must occur beforehand. It is wise to choose counsel that is well versed in early-stage investment, as venture capital term sheets contain a variety of quirky terms. Many large law firms have teams that specialize in these types of deals, and increasingly there are small firms consisting of former large-firm startup lawyers that work exclusively in this area. Larger firms may have more flexibility to defer or waive part of their bills, though smaller firms often bill at lower hourly rates in the first place. Often, investors will push the companies to negotiate fee caps with their attorneys in order to have cost certainty around the transaction and to minimize transaction costs relative to the investment size. Without a fee cap, entrepreneurs must closely monitor their lawyers and bear in mind that their time is being billed in defined increments (such as six-minute increments) so as to avoid a surprisingly large bill.

Practical Guides/Worksheets

Top “misses” in the establishment of a relationship with a VC:

1. Engagement with a VC firm is not just in the form of writing a check. It is a relationship. This relationship will dramatically alter the way the company makes decisions, so it is important for the founder to do as much due diligence on a VC as the VC is doing on the company. It is important for the founder to get along with the partner from the VC firm who will be the main contact point on the deal, and vice versa. It is also important to build relationships with other individuals at the VC firm, as these are typically partnerships where major decisions are not made by a single person.
2. Too often, founders make the mistake of not engaging the VC firms early. The best introductions to a VC firm are those that do not have to be made at all: the VC firm already “knows” the company before pitch day.

3. Early-stage companies are built around large numbers of implicit and explicit assumptions, many of which will prove to be incorrect over time. Reassess assumptions early and often and be ready to pivot based on the findings uncovered. Faulty assumptions can kill a company.
4. Importance of storytelling: tell a story during a pitch and make sure investors are engaged in the problem that is being addressed. Once they understand the narrative, be ready with data to back up the story. Entrepreneurs need to convince investors of the attractiveness of the problem they are solving, the size of the market, the uniqueness of the solution, and the ability of the team to execute the plan.
5. Do not go cheap on the lawyer: use someone who is an expert.

Conclusion

VC firms occupy a very important role in the market as a whole and in the life cycle of modern startup companies. They make relatively large, moderate-term investments in companies in exchange for significant stakes in these companies. They expect high ROIs, but this means that they are willing to accept a moderate to high level of risk, making them ideal for early-stage companies. VCs may make additional stipulations, such as the requirement to meet certain milestones at certain times and the right to invest more money in the company in the future. VCs are niche firms with a lot of knowledge in their domain of expertise, which means they can be critical about which portfolio companies they work with while also providing guidance and drawing upon experience in the domain to inform decision-making.

Resources

[Biodesign: The Process of Innovating Medical Technologies](#)

- The book *Biodesign: The Process of Innovating Medical Technologies* ([Yock et al.](#)), gives useful equations for valuation and a case study of a company that successfully used VC money. It also defines terms such as compound annual growth rate, pre- and post-money, discount rate, and more. Book's accompanying website: <http://ebiodesign.org/>.

[How Venture Capital Works](#)

- The *Harvard Business Review* article “How Venture Capital Works” ([Zider](#)) gives an overview of the position VCs occupy both in the investment market and in the product development life cycle for a middle-stage company. The VC is the latest of the initial funding stages, with the highest average investment amount and the largest stake in the company.

[Venture Capital 101: A Crash Course](#)

- The post “Venture Capital 101: A Crash Course” by Laksh Mody on *Startups & Venture Capital* gives a very readable, practical guide to VC ([Mody](#)).

[PennHealthX Podcast Episode 20—Dr. Ali Behbahani, Venture Capital and Medicine](#)

- Venture Deals: Be Smarter than Your Lawyer and Venture Capitalist
The book *Venture Deals: Be Smarter than Your Lawyer and Venture Capitalist* ([Feld and Mendelson](#)) gives both facts and context around venture capital transactions, including common deal terms, industry best practices, and motivating factors for investors, and provides the best overview of VC investment we have found.

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