CDL Advanced 2024-2025

University of Toronto Rotman School of Management Seminar

The Basics of Startup Finance

Why do companies fundraise?

Startups need to raise outside money for two reasons.

First, they are developing ideas or technology that are in some sense experimental, whose financial return lies far in the future. This is particularly true for ventures in highly speculative fields like new drug discovery or quantum computing. The great economist Joseph Schumpeter defined the essence of the entrepreneur in the early 20th century: "To act with confidence beyond the range of familiar beacons and to overcome that resistance required aptitudes that are present in only a small fraction of the population". Developing ideas "beyond the range of familiar beacons" can require years of expense before seeing any return.

The second reason startups must fundraise is because they are trying to scale quickly. Even when a great fit between a product and market demand has been found, and a defensibility strategy to limit competition is in place, a startup may want to grow faster than pure cash flow from sales allows. The reason is natural: scalable businesses often have very high returns on investment. Why artificially limit scale simply because cash flow today is tight? Further, scale often is an aspect of defensibility - founders, particularly those outside the world's leading startup hubs, often underestimate how quickly competition will arise once a good idea hits the market, and how important rapidly locking up key partners, suppliers, and early customers will be. Consider the case of Shane Chen, who invented the now-common hoverboard in 2013. Despite patents, there are estimated to be thousands of competitors making a near similar product.

The fundamentals of startup financing are identical to those of product-market fit, pricing, and scaling which you have already studied. To recap, startups differ from traditional firms because of high fundamental uncertainty, highly skewed outcomes, and limited resources of time and money. Startups therefore must quickly and cheaply figure out what product to sell, to whom, and how, while not having the resources to try out every good idea. Most of these startups will fail, while some will succeed spectacularly. Whatever method you use to fund your venture, then, should be one that complements the other aspects of your venture's growth strategy.

For these reasons, startups need to think seriously about how to raise money

necessary to develop and scale their business, and to understand the common pitfalls in doing so. As a business student, this task will often fall to you when you join or advise a startup. Fundraising is an unusual task: almost by definition, small startups will generally have little experience in fundraising on their initial team. When they find it difficult to continue operating due to cash flow problems, they may wonder whether the problem is that their actual business is not very good, or instead if mistakes in how they are trying to fund the business are the core issue. Your job is to ensure that great ventures do not fail simply because of mistakes in raising money.

What fundraising options exist?

A clever startup understands that there are many ways to get the cash they need. What's trickier is knowing which option is best for a given firm at a given time. Let's consider the most common ways startups raise money.

Venture Equity

When you think of funding for startups, you likely have venture equity in mind. The fundamental idea of venture equity is that founders give up partial ownership of their firm in exchange for cash. They may also have to give up certain control rights - investors often have board seats, or the ability to control certain aspects of future fundraising rounds. These control rights are of course sensible in some cases: who would invest money in a company that could, next time they tried to raise more money, fully dilute the shares held by earlier investors?[1]

The iron law of startup finance is that there are only 100 points on the cap table - that is, the founders, investors, and employees together share exactly 100% of firm equity. This means that every point held by a new investor means dilution for existing investors. When a firm hopes to grow quickly, even one percent of the firm can be quite valuable, so properly using firm equity requires startups to very carefully manage when and to whom equity is given.

Venture Debt

Bank loans are a common source of financing for a new restaurant or laundromat. It is a mistake to conflate how new firms overall operate in their early days with how high growth startups operate. A 2019 Kauffman Foundation survey found that only 0.5% of new businesses rely on venture capital, quite different from startups! That said, there are some forms of debt you may see.

Venture debt has two meanings, though the most common use is only "debt"

[1] A famous example of this led to the "pleitos colombinos", the legal battle following the voyages of Christopher Columbus. The Spanish Crown promised him a 10% "share" in all the riches leading from his discovery. Suffice to say, they reneged!

in name. First there is a type of venture debt known as a convertible note. A convertible note is a loan to a company that, as we discuss below, gives the right to convert to equity on privileged terms as the venture grows, though in principle it is never "repaid" directly like a loan would be. Common alternatives to a note with even less debt-like features in practice include the KISS (developed by 500 startups for their portfolio firms) and especially the SAFE (developed by Y Combinator).[2] Less common are pure or traditional loans, as you might get from a bank: startups often have little collateral to back up the loan plus high failure rates. That said, as the Kaufmann Foundation lays out nicely, for firms who need to buy or lease an expensive piece of capital equipment, venture debt is a method for financing that purchase backed up by the machine itself as collateral. To the extent that users provide predictable recurring revenue, there is increasing potential to use pure debt to fund this more predictable growth as well.

Bootstrapping

Bootstrapping refers to growing a firm solely out of revenue. In regions with limited venture capital, this was traditionally the only way to finance a startup. For instance, the medical records company Epic Systems, based in rural Wisconsin, the video tutorial website Lynda, founded in the New Age village of Ojai, and the project management software company Atlassian, based in Australia, did not rely on outside financing for their early growth. This has the benefit of retaining equity in the hands of the founders. It has the further benefit of permitting the founding team to focus on their core business rather than fundraising. That said, many businesses are not revenue positive for many years, and others are more successful if they can access further capital to scale more rapidly than bootstrapping permits.

Crowdfunding

Crowdfunded businesses, on sites such as Kickstarter, raise funds by "preselling" products to interested consumers, then using the funds to build out the business and send the products to early buyers. This funding model is often quite quick, useful for products where consumer demand is otherwise uncertain, and complementary to other forms of financing which will value the venture more highly once demand is proven. Oculus, the AR headset company, was initially funded on Kickstarter before selling themselves to Facebook for $2 billion USD. The New Zealand shoe company Allbirds and the cell phone attachment PopSocket were also originally crowdfunded. There are fewer models of crowdfunded B2B products, but it is an important option for consumer-facing businesses with uncertain demand.

Non-dilutive Grants

Non-dilutive grants seem great. Someone, generally the government, gives

[2]See "The Safe, the Kiss, and the Note", Minn. Law. Rev., 2019 for further details.

an entrepreneur cash without taking equity or requiring repayment. The cash often has conditions. For instance, that it can only be used for domestic hiring, or that it can only be used for researcher salaries. Nonetheless, who would object to free money? Grants of this type in Canada include IRAP, BCIP, and academic scientist funding that permits the scientist to retain IP rights over the commercially useful aspects of their research.

However, a *very* prominent venture capitalist told one of our founders once that their $500,000 non-dilutive grant was actually a negative. Why? Think in terms of incentives. The equity split of a founder and an investor determine the amount of effort each side will put into making the business a success. Investors prefer founders who face some pressure to deliver results, and deliver quickly.

What is going on here is a view among some investors that subsidy-heavy regions outside of Silicon Valley produce firms that move too slowly in developing and scaling their business. The incentives produced by the subsidy are very different from the incentives produced by an investor who will structure money such that it is in the founders' interest to achieve certain key milestones rapidly. Indeed, though government grants are non-dilutive, the conditions they include are often a strict negative for other investors solely focused on increasing the long-run equity value of your firm. For instance, government grants can tie a firm to a location, push them to employ more workers rather than invest in machinery, limit the ability to pivot out of a less promising technology, and so on. Entrepreneurship is a dynamic process of experimentation, and so there are real costs to limited flexibility.

The other issue with non-dilutive grants is the time sink for founders. The effort producing application materials necessary to get a grant compared to the grant amount is often a bad ratio - remember that the time of the founders is your most constrained resource. Further, the timeframe between application and receipt of the money can be far too long for startups.

This isn't to say you should avoid grants. In some fields - health, for example - the timeline from basic research to commercial product is so long and uncertain that early research tends to be heavily concentrated in academia or in grant-driven small firms. That said, grants and other governmental programs historically make up a very small portion of the seed-stage funding CDL firms attract, and there are good reasons why that is the case. The exceptions here are more "lab science" fields, like space or health, where technical milestones must be achieved or shown or else there is no business. To the extent that lab space and salary can be covered by government in the short-run, this can be useful.

There are two other times non-dilutive funding is unambiguously positive. First, in many jurisdictions, there are staged funding proposals for long-run projects particularly for "dual use" technologies that can be used for national

defense or other government purposes. SBIR and STTR phased programs in the United States fund a number of CDL ventures, and have the benefit of also derisking product-market fit for government customers (and in some cases making the company eligible in the first place for future grants). Many countries are proposing similar tiered funding policies (e.g., ARIA programs in the UK), but you will need to investigate the situation in the country and industry you are operating in. Second, especially for Canadian businesses, companies eligible for SR ED research tax credits can get a large portion of the credit advanced to them immediately, via third party financial institutions. This can be incredibly useful for working capital that does not require giving up equity - ensure you check eligibility as many startups will be eligible for this refundable tax credit.

Side businesses

Many startups fund themselves through side businesses that are effectively consulting fees. For instance, a company building a piece of software to look for errors in tax documents may require two years of work to build their primary product. They, however, can use their technology to do custom, one-on-one tax investigation for individual companies, and charge for that. This model is often compelling, or even necessary, for companies who are on the verge of bankruptcy. However, it effectively makes the core business a part-time concern, which is always a concerning situation for a founder to be in.

In general, founding teams should work full time, or more than full time, on their core business. While side businesses or consulting are sometimes necessary to keep a startup a going concern, startup advisers nearly always push the founding team to find alternative sources of funding as quickly as possible, or to convert the consulting business into something resembling a pilot for the venture's primary product.

In a few of our streams, such as the Space streams, this model is very common - there is a long-run goal that requires becoming a trusted vendor for governments or other large players. Early contracts using the core technology can then be useful - the option value, in our experimentation language, comes from proving your ability to execute with these top tier customers. A decision often comes up, however, about whether the long-run business is actually worth pursuing when the short-run business is going well.

New alternatives

There are, of course, many ways to raise the money necessary to grow a firm, and a clever adviser will be able to think of many beyond what we have already discussed. Two fundraising mechanisms we've seen of this type over the past few years are "non-dilutive revenue share agreements" and ICOs.

A non-dilutive RSA, most well-known in Canada via a quick-growing investor

called Clearco, is essentially a debt instrument that is paid off out of revenue. In Clearco's model, assume that some of what your clothing company needs to raise money for is to advertise on Facebook, and the rest is to develop new products. The risk profile of these two uses of money are very different. Indeed, the ROI on the ad spend is quite predictable from past observable outcomes. A non-dilutive RSA would look at those observables, and offer you a chunk of money, with repayment coming out of revenue until the principal plus a markup (in their case, 6%) is returned. Institutions like these allow founders to focus their time, and their cap points, on raising money for speculative, long-term business growth. Capital with predictable, short-run return can be accessed much more quickly, and without giving up equity.

ICOs, or initial coin offerings, are (or should we say, were) a common method for blockchain-based businesses to raise money, especially in 2017. The fundamental idea is straightforward: a venture sells a set of digitally transferable "coins" which can be used as a medium of exchange on the platform being developed. The fundamental idea here is that the investor learns from ICO demand how much *consumer* demand exists for the product that they are developing. Ethereum, developed by a young Torontonian, is the canonical example of a successful ICO. Though over $6 billion USD was raised with ICOs in 2017, significant fraud plus a crackdown by securities regulators has made this fundraising route much less straightforward than it had been previously. The fundamental problem is that while anyone can buy a product, selling a security is much more highly regulated largely for the protection of investors. Where ICOs have led to legal issues down the road, securities regulators have argued that the coin offering was an illegal attempt to sell securities to non-qualified investors, and without the required disclosure. From a regulatory standpoint, ICOs in their 2017 form are essentially dead - but do not rule out clever people finding new ways to secure investments without going down the regulated equity path!

A more recent alternative for blockchain companies developed by Protocol Labs, and first used in 2017 by FileCoin, is the SAFT: the Simple Agreement for Future Tokens. SAFTs are structured very much like SAFEs, except that the asset converts into tokens rather than equity following certain pre-specified milestones. SAFTs also require purchasers to be qualified investors, so are not open to the public at large. Again, regulators have taken a dim view of attempts to raise money outside the regulatory process, so depending on the location of your firm, even SAFTs may not be legal.

The list of fundraising options here is far from exhaustive, but it covers the overwhelming majority of ways CDL ventures have raised funds in previous cohorts. This does not mean that you shouldn't be clever when considering alternative funding options, of course. Many of the mechanisms above have been developed or refined within the last few years, and you can be assured that the next few years will similarly bring novel methods.

What is the "normal" progression for fundraising?

Venture equity fundraising generally takes place in "rounds": friends and family/'pre-seed', angel/seed, Series A, Series B, and so on. The goal is that each round represents funding a more valuable venture, who has achieved more milestones on the road to profitability, acquisition or IPO. We should be clear that "valuable" for early-stage ventures does not mean what you may think. For those with finance experience, venture valuation can be thoughts of way out-of-the-money call options on ownership of a company. Effectively every CDL company, if it needed to be liquidated tomorrow, is worth zero. The "valuation" is therefore best seen as the price of owning a call option on the possibility that the venture will turn into a large-scale, profitable business. Increases in valuation represent greater certainty about that event occurring.

Note that funding round progression is very unusual compared to most new businesses in the economy at large. A restaurant, for example, borrows money to build out their space and hire initial staff, then begins earning revenue on a relatively stable basis, paying back the loans, and taking profit. Growth startups are different: the road to profitability is much longer and more uncertain.

Most venture funded firms fail and return nothing to their investors. Therefore, venture investors are looking for firms with a chance of being very profitable in the future, not those with a high probability of being modestly profitable (for which, debt is a more sensible funding instrument). The implication of this desire is that the potential or realized success of the startup must rapidly improve between each stage of fundraising. When planning venture financing, this "hockey stick" best case scenario should always be in the mind of the venture and their advisers.

Convertible debt, especially in simple versions like the SAFE, is by far the most common mechanism for funding at seed stage in Silicon Valley today. Outside the Bay Area, there is empirically more variation in how early stage ventures are financed.

When seed money is too limited to get a firm to their Series A, but there are clear, identifiable milestones or proof points which can be reached with a relatively small infusion of money, "bridge financing" is an option. This is generally structured as convertible debt with less upside than a full round funded on those terms.

With VC fundraising, what details really matter?

When fundraising, there are three essential details. From who? How much? Under which conditions? Important choices, with important tradeoffs, will bind on all three questions.

Who is providing money?

Venture equity investments come, broadly, from three sources. Small individual funds/"seed funds"/angel investors, venture capitalists with broad portfolios (some of whom are governmental or part of existing banks), and corporate VC.

The lead investor is most important. They generally set terms, introduce your venture to other investors, invest a large fraction of the entire amount being raised, advise you on further financing rounds, help recruit early employees, and occasionally even take a seat on the board. In our experience at CDL, the bulk of time spent on fundraising, if you go the venture equity route, is on finding a lead. Indeed, Fred Wilson of Union Square Ventures famously argued that there's no point in taking meetings with folks who can't lead a round until you have a lead secured; in any case, those other prospective investors will want to know who the lead is and at what terms before making any commitment. In 2023 and 2024, as investment capital became tougher to find, there has been a slight shift in what is meant by 'lead' in deeper tech industries: you now more commonly see leads who are technology specialists but who are *not* the largest cash contributor to a given round. That is, larger investors will follow the terms set by a lead VC or angel group that specializes in a particular technology. Be aware of this possible distinction.

So who leads? Early stage investment tends to be local. In Canada, over 60% of seed stage investments are led by Canadian investors, with only 7% coming from outside North America.[3] The reason for local investment is because early stage investors tend to want hands-on, frequent interaction with the companies in their portfolio, and travel is time-consuming and costly. Seed stage investments are often coming from so-called family offices, or from the wealth of successful entrepreneurs in the same industry. In later stages, larger venture capital firms like Bloomberg Beta or Andreesen Horowitz, quasi-governmental organizations like the BDC and Temasek, and "corporate VC" offices within large firms like General Electric tend to lead rounds. For startups with multiple options, there can be a tradeoff between investors with deep industry experience, those with successful histories of advising firms, and those with the ability to finance follow-on rounds.

An important class of investor, of which corporate VC is one type, is the "strategic investor". A strategic investor wants your company to succeed because they have a personal use for your product. High-profile strategic investors give credibility, align interests to develop your product for that investor's use, and can lead to an acquisition. On the other hand, strategic investors can close off partnerships with their competitors. How should these factors be weighed? Strategics who have a track record of mentoring and developing the companies they invest in are optimal, and industry insiders often

[3]See the CB Insights/PWC Report on Canadian venture capital, produced twice per year.

know which strategics have that reputation.

How much money to raise and how does a cap table work?

An important idea to understand in standard staged venture equity investments is dilution. Founders generally begin with 100% of the equity in their company. Occasionally, holders of IP rights or important early advisors will hold some small share as well. For example, if you spin off a company from your old employer to develop a technology they did not want to continue developing internally, the old employer may insist on a small equity share in the new company.

In every stage of investment, that original 100% share is "diluted" as some fraction of the company flows to new owners. How much dilution is normal? One should expect 15-20% of shares post-seed to be held by investors, and a further dilution of 15-20% or so in the Series A.

Let's see an example of what happens to a cap table and how you calculate things. Here we start with two founders, who own the company 50/50. They raise a SAFE, 500k at a 5 million dollar "cap" and 20% discount, then a year later they raise a seed round of 3 million dollars at a 15 mllion dollar "pre" valuation, with the investor requiring a 10% option pool to be created. This option pool is contractually set to be based on the company after SAFEs "convert" but before the seed round investment happens, meaning only prior investors and the founder are diluted.

Whew! But don't worry - it's not that complicated. Let's do the math.

Party	**Shares**	**Ownership**
Founder A	6,000,000	60%
Founder B	4,000,000	40%
Total	10,000,000	100%

Table 1: Initial Cap Table

SAFE Round

A SAFE (Simple Agreement for Future Equity) is not immediate equity. It converts to equity at a future equity round (the Seed round in this case). The SAFE investor gets to buy shares at that time either with the whole company not counting the SAFE dollars valued at the cap, or at the discount of the share price the investors in the new round pay, whichever results in a lower price per share (better for the investor). You include the SAFE on the cap table as a note even before it converts - for a fast growing company where the cap almost always applied rather than the discount, in the case above you can intuitively think "my investor has bought a million new shares for .50 cents each".

A year later, we raise a seed round, 3 million dollars on a pre-investment valuation of 15 million, with a requirement to make a 10% pre-seed, post-SAFE option pool. "Pre-Seed, post-SAFE" means the option pool is calculated after the SAFE converts to equity, but before the new Seed investors receive their shares. This is the most common method, but will be in the contracts you sign with investors.

Step 1: Convert the SAFE and add option pool

We need to determine the SAFE conversion price. Let's *assume* the cap is used, and then we can check the discount later when we find the share price the new investor pays. If SAFE owner takes the cap, they get 1 million shares (their SAFE investment is 10% of the value of the cap – 500k/5m – so it is like investing in a priced round 500k at 5 million "pre money")

To create an option pool of 10% of our shares, we need to authorize another 1.22 million shares (giving us 12.22 total). That is, we will have 12.22 million total shares, 1.22 million of which are in the option pool, or exactly 10%. A tiny caveat: these option pool shares are 'authorized' but not 'issued' until you give them out to future employees. So the calculations we are doing here are for what is called a 'fully diluted cap table'.

Party	**Shares**	**Ownership (Post-Option Pool)**
Founder A	6,000,000	49.09%
Founder B	4,000,000	32.73%
SAFE Investors	1,000,000	8.18%
Option Pool	1,222,222	10%
Total	12,222,222	100%

Table 2: Cap Table After Option Pool (Before Seed Investment)

Step 2: Calculate Seed Round Shares

So we have 12.22 million shares. The company is "worth" 15 million at the time of the seed round, before the new investment comes in. So each share costs 15/12.22=1.22727. The $3m investment buys $3m/1.22727=2444444 new shares.

We also check now if the SAFE owner would have prefer the discount - this is generally only true if the valuation of the company when the next raise happens is close to or below the cap on the SAFE. Remember, they paid 500k for 1m shares (.50 per share). The 20% discount would let them buy shares at 1.22727*.8=.982 per share. So the cap was better, as we'd assumed. Now we're done! Let's add up.

That gives us 14,666,666 total shares for a company valued at 18 million "post" the seed investment. If you make a cap table for a venture, you also want to know: who owns common and who owns preferred shares? Do investors have

Party	Shares	Ownership (Final)
Founder A	6,000,000	40.91%
Founder B	4,000,000	27.27%
SAFE Investors	1,000,000	6.82%
Seed Investors	2,444,444	16.67%
Option Pool (unissued)	1,222,222	8.33%
Total Issued Shares	13,444,444	91.67%
Total Authorized Shares	14,666,666	100%

Table 3: Final Cap Table (Post-Seed, Post-Option Pool)

any special liquidation or pro-rata or continuation rights? If you have multiple SAFEs, you do them "simultaneously" at the next raise or other triggering event. All these details should be on your cap table and your founders should know them.

An iron law of finance regardless of what investing vehicle you use is that *there are only 100 points on the cap table, and never will be there more.* What is the best deal? It is not the one that raises the most money! If you need to give away two more points on the cap table in order to raise another $100,000, this may seem small in the present. However, when your company is worth $100 million in the future, those two points are $2 million dollars out of the founders' pocket. That is, if you give up cap space for dollars today, you better really expect those dollars to materially affect the probability your startup succeeds.

Geoff Ralston, former President of Y Combinator, has a simple online calculator to help you think through these issues.

The amount of money raised in a given stage varies depending on the location the firm operates in, and on their industry. Early stage pharma companies occasionally raise $100 million or more. For less capital-intensive firms, seed stage firms tend to raise on the order of $500,000 to $2,000,000 in Canada, valuating the venture at roughly 2 to 10 million dollars. Rounds in the United States can be quite a bit higher. The median pre-seed and seed valuations in the US were $5.7 million and $12 million. This figure has grown substantially in recent years, partly reflecting a redefinition of what Series A means relative to Seed.

In terms of planning milestones for future raises, historically the median 'step-up', or increase in valuation between rounds, is roughly 2x, with a mean step-up higher than that. This went up to 3x during the hot market in 2021 and 2022, but is now back to roughly 1.7x. Pitchbook produces an annual report (2023 version is here) documenting these figures.

If you use venture equity, what structure should you use?

If you are raising through venture equity or debt, the *term sheet* is a document

laying out the conditions of the proposed investment. A term sheet is not a legal agreement - investors will often do some sort of due diligence on your venture before the legal documents are drawn up - but it is considered bad faith to accept one and then renege on the promised deal.

Broadly, venture investments come in three flavors: convertible debt, "simplified" versions of convertible debt like the SAFE, and pure equity ("priced round") investments. The primary differences are threefold: the convertible debt is debt, whose holders will be repaid during liquidation before equity owners, convertible debts and SAFEs allow investors and the venture to delay setting a precise valuation of the company, and the legal costs and time is substantially less than with a priced round.

A priced round requires a valuation: how much is the company worth. Imagine you begin with 10 million shares[4], divided evenly between the two founders and among unallocated shares (basically, those the company holds to allocate as options to early employees). If $1 million is invested at a "pre-money" valuation of $4 million, then the company is worth $5 million in total (the cash investment plus the value of the company). This is sometimes stated as $1 million invested at a "post-money" valuation of $5 million. We therefore grant an additional 2.5 million shares, so that the investor owns 20 percent of the company (now consisting of 12.5 million shares). Each share is now worth 40 cents each, and following the investment, the investor holds 2.5 million of them, with the founders holding 5 million each. Of course, this is an "on paper" valuation: the shares can't be sold at this point like those of a public company could be.

Convertible debt is technically an interest-bearing loan. Just like any debt, they have a maturity and interest provisions. The interest rate is often tiny - say 2%. Why would anyone offer a very risky early-stage firm a loan at such a low rate of interest? Because the "convertible" part of convertible debt gives the investor the right to convert their loan into equity, a right generally exercised when the venture has a future priced round. Further, the loan converts into equity on a preferred basis - either the right to buy shares at a lower price than future investors (the "cap"), at a discount compared to future investors (the "discount"), or sometimes both. Convertible notes also tend to detail what happens if the company is acquired prior to the debt converting, often through the so-called liquidity preference we'll discuss below.

How does this work in practice? Imagine an early investor gives a venture $100,000 with a cap of $2 million and a discount of 20%. If the venture raises $4 million in its next round at a post-money valuation of $20 million, the early investor's "debt" can be used to purchase shares at 1/10th the price of the new investor, due to the cap setting the maximum valuation of the company when computing the conversion price to $2 million, and another 20% lower than

[4] 10 million seems arbitrary, but it's a common figure - large enough that you are able to make fine divisions as you split equity in the future.

that, due to the discount. To be clear, many venture contracts will include a cap and a discount, but the investor only gets to apply one of these when the next round is closed. Other notes specify only a cap or a discount ex-ante. An easy way to understand this with a cap is that the investor can convert their note to x% of the company where x is the initial investment divided by the cap. In the case above, $100,000 at a 2 million cap means that the investor will be able to convert to 5% of the equity in the company following the priced round if there were no discount, or even more if they can apply a discount as well.

The SAFE can be seen as a simpler version of convertible debt. What it does is strip convertible debt down to its most essential features: there is no interest, no maturity date, no repayment requirement, no liquidity preference, no side deals, and a choice of either a cap or a discount, but not both. The SAFE *automatically* converts to equity during the first priced rounds, and you can have as many SAFEs as you want, even on different terms, until that point. That is, the SAFE is effectively venture equity with the valuation left for future funding rounds as in any convertible debt. SAFEs convert to preferred rather than common shares.

Let's see how it works mathematically. You raise 300,000 from an angel on a 1 million dollar cap, then later raise a million dollar SAFE with a 5 million dollar cap. As a sole founder, you otherwise own the company. Next year, you raise 5 million dollars in a Series A with a post-money 20 million dollar valuation. The investor also insists 10% of shares be allocated 'post-money' to an employee option pool (this is quite common) - and be careful, this option pool often comes from earlier investors, in which case we call it a 'pre-money option pool'. Who now owns what? Let's do a calculation. What will happen is that the SAFEs will convert to equity, then the option pool will dilute those shares, then we will add new shares such that the new investor owns 25% of the company.

To make things simple, let's assume we begin with 10 million shares. Since the priced round is at a valuation above the cap (we compare the cap to the *post-money* valuation of the priced round), it is easy to know what the SAFEs convert to: the first one converts to 30% of the company, and the second one to 20% of the company. So we now have 10 million common shares owned by the founder, 6 million preferred shares to the first SAFE investor, and 4 million preferred shares to the second SAFE investor. We need the new Series A investor to own 25% of the company, hence need to allocate another 6.67 million preferred shares, giving us 10 million common shares and 16.67 million preferred shares. We then need to ensure there is a 10% share of all shares held in an option pool, meaning we will have another 2.96 million common shares created for the option pool. We therefore have a total of 29.63 million shares. The founders now hold 10 million, or 33.7% of those shares. This shift in ownership is what we call dilution.

What do we learn from that calculation? Well, first, even though a SAFE or convertible note doesn't show up on the cap table directly, you should have noticed that the founder implicitly gave up half their shares to the SAFE investors - that's a ton of equity to give up really early, so much so that it could very easily cause problems with later fundraising, as we discuss below. You also notice that while the calculations are a bit complex, they are simple enough to put in a single paragraph of text. Keeping track of the 'fully diluted' cap table, in a variety of future fundraising scenarios, is definitely a task for the founders and not just the lawyers! By the way, the conversion math for convertible debt is very similar, except that you'll need to account for interest when doing the calculations.

Why would a founder agree to a cap or a discount? Well, the earlier investors are taking on quite a bit of risk compared to later investors, and may even be providing advice and assistance to make the company more valuable. Founders often spend way too much time negotiating the exact cap, trying to push it higher - that said, if you do the math, you will see that the cap often plays fairly minor roles in the eventual equity the founders wind up with. A 20% increase in the cap may allow you to say, "hey, we raised at a 20% higher valuation!", but after accounting for future dilution you may only wind up with the founders owning 2% more of the company. It may not be worth risking having a deal collapse over such a minor issue. There are no fixed numbers for caps and discounts, by the way, but if you need a rule of thumb, 20% is the most common discount, discounts are slightly more common than caps especially for bridge financing, and a cap of 5-10x is roughly average.

Looking at these options, it should be clear that priced rounds "clear things up", make the cap table very easy to understand, give formal control rights to shareholders, and allow for unusual or industry-specific clauses to be included. This is at the cost of time and money - lawyers aren't cheap and you would never settle a priced round without one! On the other hand, convertible debt and especially SAFEs are very easy to understand, and very quick to settle terms on, but they also "put off" important conversations about minority shareholder rights and corporate valuation. It is therefore unsurprising that SAFEs are most common in pre-seed, early seed, and bridge rounds, convertible debt in larger seed and some bridge rounds, and priced equity in Series A and further rounds.

Which terms and details matter?

Beyond the cap and discount in convertible debt, there are a few very important terms to be aware of in venture equity. A "liquidation preference" means that if the company is liquidated, the shareholders with a liquidation preference get their money before anyone else. For instance, if someone bought $500,000 of preferred stock with a 1x liquidation preference, they are entitled to $500,000 before any non-preferred shareholders receive anything.

For example, if the company liquidates for $600,000, and we both own half the company, but my $500,000 investment had a 1x liquidation preference, I would receive $500,000 and you would receive $100,000. Investors may have liquidation preferences and "participation rights" in which case they can double dip: in addition to receiving their $500,000 due to the liquidation preference, these shareholders *also* receive half of what remains due to the half ownership of the company. If someone bought $500,000 of preferred stock with a 1x liquidation preference and participation rights, and owned 50% of the shares in the company, they would receive $500,000 plus $50,000 when the company liquidated for $600,000, and the shareholder without these rights would receive $50,000.

Often the right to double dip in this way is limited to a "participation cap": if you take your liquidation preference, you can only double dip with participation rights until you receive some multiple (say, three times) of your initial investment. If the company liquidates at a price that is quite a bit higher than the initial investment, this cap means that the shareholders with liquidation preference and those without will wind up receiving the same amount of money per share. How common are these? Most deals do not have participation rights or a liquidation preference - certainly not one above 1x - unless the company is in a particularly unusual financial position.

The distinction between pre- and post-money on conditions also matters a ton. Consider a $1 million dollar investment at $5 million post-money. You may think this means the investor owns 20% of your venture. Not so fast. A common condition in early investments is to set aside an option pool to help recruit future key employees. Consider a required option pool of $1 million. It matters greatly whether that pool is set aside pre-money or post. If pre-money, then 25% of the $4 million valuation is set aside, directly diluting the founders. If post, then 20% of the $5 million is set aside, diluting both the investor and the founder. In the first case, the founder would hold 60% of their company, the option pool 20% and the investor 20%. In the second case, these figures are 64%, 20% and 16%. That is, whether the required pool is set aside before the investment is accounted for or after means a 4 percentage point shift in the founder's ownership.

Incidentally, how much equity should early employees get, where "equity" here generally means options? The amount of equity depends on how key the employee is. A one-person venture bringing on an experienced CEO as a de facto cofounder may need to give 50% equity! Beyond that, there are few rules of thumb. An outside CEO at a seed startup might take 5% equity; CMOs or heads of sales more like 3%. A very early engineer might get 1% or less. Remember, there are only 100 points on the cap table, and these equity grants add up quick. As the company grows, later employees necessarily will get smaller equity options than earlier ones. These amounts do not vest immediately - a fairly standard model has a one year "cliff" (no vesting) followed by a 4 year vesting period. After five years, the employee is fully vested, and a

further retention grant may prove important for key players.

There are many more terms that come up, particularly in Series A and onward: drag along rights, board seats, anti-dilution provisions, and so on. It goes without saying that the more money you raise, the more serious a lawyer you will want on your side of the table. As CDL ventures tend to be a bit earlier stage than the point where these more exotic conditions play a major role, we omit further discussion in these notes.

What common mistakes are made?

Now that you understand the basics of startup finance, what fundraising mistakes are most commonly made in practice?

Bad cap table makes refinance risk too tough

It makes it difficult to raise money when too much of your company is owned by someone other than the founders and key employees, for two reasons. First, investors will worry that the founders will not have the proper incentive to work full bore unless they own a large share of the venture. Second, investors will worry about "refinance risk". Imagine you are an investor putting $1 million into a company that you think has a strong future prospect. Imagine that you are a relatively small investor and do not have the ability to invest many millions at future rounds. Then you may worry that even when the company is on target from your perspective, future potential investors will disagree, refuse to refinance the company, and your shares will become worthless. A cap table with unusual provisions giving some unsophisticated early investors too many rights, or one where inactive founders hold too many shares, will make future investors wary, hence increase refinancing risk and make current potential investors wary.

This situation is particularly germane when a company is going to have a "down round", meaning their valuation has fallen since the last time they raised. This is not an uncommon scenario for a company pivoting after an unsuccessful product launch. Renegotiating with early investors and other shareholders in order to make the cap table attractive to new investors is a seriously challenging job, and one that many companies with otherwise brighter futures are unable to accomplish.

Too much equity held by nonessential early advisors/inactive founders

Remember that there are only 100 points on a cap table. Every fraction of your company owned by someone who has not contributed either the sweat equity and knowledge, or their cash to help you grow, is a fraction of your company that the other founders do not own. Equity aligns incentives - critical new hires, and active founders, will work harder if they share in the growth

of the company. This means that you do not want to get in a situation where nonessential advisors and inactive founders own a large fraction of the company. A simple way to handle this is for co-founders to legally agree that their ownership *vests* over time. For instance, if two co-founders split the initial shares equally, they may agree that one quarter of their shares vest for each year they spend at the company. If a co-founder leaves, the unvested shares revert to the company. The basic idea here is that if founders and early advisors are essential to the company, their skills and expertise must be replaced if they leave, and you want to have points on the cap table to make this replacement.

How complicated does the shareholder agreement need to be? Generally, fairly straightforward. Incubators around the world have developed standardized agreements in line with local law. See, for example, the document templates prepared by MARS for Ontario startups.

Valuation ask is too high

Many founders value their company more highly than the market does. They do not get traction with investors because they are asking for too much money at too early a stage in the development of their firm. For certain types of businesses, such as software as a service, there are near-mechanical rules mapping current traction into reasonable valuations. For more unique firms, it is not surprising that founders can differ from investors in valuation. Trusted advisors, lawyers with startup finance expertise, and serial entrepreneurs can all be useful sounding boards when considering what your venture should be valued at, and if the number seems low, what needs to be proven out/derisked in order to raise at a higher valuation.

You have bad investors

For a startup, good investors do not waste the founders' time, are aligned with a long-run vision of the company, do not prevent useful business activity due to conflicts of interest, and provide advice and connections in addition to just money. Bad investors insist on provisions which annoy future potential investors, require paperwork and milestones unrelated to the long-run success of the venture, have conflicts of interest (not uncommon for strategic investors!), and do not have sufficient industry knowledge or pull to assist beyond just writing a check. Particularly in poorly-developed ecosystems, or with investors who are HNWs without angel/seed experience, be very wary about these dangers.

Business has revenue, but claimed ARR is not repeatable or scalable

Investors are always skeptical of revenue that is not actually repeatable. That is, revenue that comes from one big client who has not shown indications it will repeat the purchase or expand it is not repeatable revenue. Revenue that

comes from customized, individual work between the founder and a client is not scalable, repeatable revenue - that is a consulting business which may very well be profitable, but is not fundable on a venture scale. Recall that startups which are VC-fundable are expected to have "hockey stick growth" as a best case scenario.

Plan for scaling business or finding product-market fit depends on future hires

Ideas are cheap. Good execution is not. A huge mistake made in fundraising is to answer questions about scaling or traction with "we will use this funding to hire salespeople to solve that problem". Getting traction for your product *is* the business! It is fine to argue, with credibility, how new salespeople will help scaling. But one cannot simply hand-wave aspects of the pitch that are core to the viability of the business. As one CDL mentor put it during a recent meeting, "no one funds your venture because you need the money. They fund your venture because of its potential for profitable growth."

Business is a technology/founders are just smart folks at risk for acqui-hire

There are lots of very interesting pieces of technology developed by very clever scientists. That technology alone is not a business. In particular, investors often worry that cool technology with no product end-game other than showing the skills of the founders will not scale into a venture-investable business. Firms of this type are often targets for "acqui-hires", where the acquisition of the startup at a relatively low price is a method for providing signing bonuses to the founders at a tax attractive basis.

Fundraising runway too short

Runway is an oft-ignored problem. The average length between fundraising rounds is nearly two years. There is variance on that number, so many firms take much longer to raise their next round. By taking current cash plus expected revenue, and dividing it by proposed spending per month, a firm can calculate its "runway". How short a runway leaves no time for the subsequent round to close and cash to arrive in the startup's bank?

It is better to be ready to raise before you have to. When your runway is very short, you have little leverage with investors. To raise before you have to, you need to hit milestones from your previous round many months before you run out of money. How long does a fundraising round take from your first pitches to having money in the bank? It depends. If you get lucky, it can take a week. For most firms, however, the answer is "longer than you expect", potentially many months.

Investors do not share incentives with you

Venture investing is based on a simple premise. The vast majority of investments return no or little money to the investor. Return is made due to "big hits". Angel investors and VCs therefore tend to have a portfolio of companies. You, the founder, may decide you want to run a smaller business rather than trying to rapidly scale. You may differ from your investors on the benefit of an acquisition due to different shareholder rights. You may want to wait to raise more money while your convertible debt holding investors will want to raise today at a lower valuation so their debt converts more favorably. You may value an "acqui-hire" exit that pairs a low company acquisition price with a high post-acquisition salary at your new company more than your investors, who don't share in that future salary. This is all to say that investors and founders do not necessarily share fully aligned incentives.

The most important unshared incentive comes back to the iron law: there are only 100 points on the cap table. Imagine some amount of hard work increases the value of the venture by $100,000. An investor who only owns 5 percent of the company is only willing to do that work if the disutility of the effort is less than $5,000. A founder who owns 50 percent of the company would do so even if the disutility of the effort was $50,000. Likewise, if the *founder* owns too little of the company, they don't share in the upside of hard work enough to put in optimal effort. Whose effort is most important? An essential advisor? The connections and advice of your VC? The effort of the founder? The effort of key early employees? Understand that providing stronger incentives to any one of these groups necessarily lowers the incentive you are providing to the others.

Sophisticated investors generally prefer to have well-aligned incentives which maximize the future value of the firm, subject to the caveats above. Unsophisticated or unscrupulous early angel investors, however, can and do take advantage of inexperienced founders, using investment provisions that are harmful to the founder. This is one of the reasons that standardized documentation like the SAFE has become more common for early-stage investments.

The cap table is poorly understood

If your venture does well, at some point you will raise money from a sophisticated investor or acquirer. Many small firms just track ownership on a spreadsheet. It should be clear from this document that there is much more to ownership than just who holds how many shares: some are preferred, some are not vested, some have liquidation rights, and so on. A lawyer will go through the original legal documents upon large investments or acquisitions, and some shareholders may find that they effectively own much more or less than a simple spreadsheet may have indicated. Knowing the fine details of your cap table when negotiating with investors gives confidence that a startup is well run, just as knowing the fine details of your technology gives confidence that your venture can develop the product successfully.

Incidentally, how much do different financial terms for different shareholders matter in practice? Gornall and Strebulaev looked at US-based "unicorns" (private firms reportedly worth $1 billion USD or more). By looking into legal filings and adjusting the value of earlier shares to their fair value based on different shareholder rights, they found that the unicorns' reported values are overstated by an average of 48 percent. An investor who does not understand these clauses may wildly overestimate the value of their shares should the venture be acquired or go public.

What needs to be in your fundraising prep and pitch deck?

What do you need before contacting investors? Briefing documents and a pitch book. Reid Hoffman from LinkedIn has a wonderful example of his Series B pitch book, annotated with a discussion of why certain factors were included or emphasized.

The point of a pitch book is to convince investors that your technology is real, that your team can execute and scale, that the market is large enough to make an investment worthwhile, and that you have seen traction leading to repeatable business or have otherwise achieved industry-relevant milestones thus far. How can you prove those factors? You must be able to summarize the product and business model in an interpretable way, hopefully before you get past the very first slide. It is amazing how many startups are unable to do this! You preferably have outside validation of the team's skills, the firm's growth potential, and the product's traction: LOIs from key early adopters, proof that your scientist is a world leader in their field, rapid revenue growth that is repeatable at lower cost with each iteration, a well-conceived defensibility strategy, and so on. If one of the founding team was a member of a startup with a successful exit, highlight that. If the product is attracting positive attention in industry press, show that directly.

It is easy for founders to believe that their technology is naturally interesting and easy to understand. This is not the case. A product that performs its key task 10% better than the industry standard along some margin may be impressive technologically, but it is not a business. It is also easy for founders to believe that with good technology, traction will come naturally. This is not the case. Great firms with extremely impressive technical founders regularly fail because finding good product-market fit, attracting and keeping customers, and expanding the business is not easy. Investors know this, and they want evidence that you both know this, and know how to solve these problems.

There is no standard format for pitch decks. Y Combinator has a lovely essay arguing for simplicity in the deck; relatedly, see the word of the graphic designer Edward Tufte on how to show information clearly. Regardless of the form of your deck, it is essential to show clarity and precision about what the business is, why the team will execute, and how the money will be used to

reach milestones that would permit refinancing at a higher valuation before the cash runs out. If your product is tangible and you have a prototype, bring it. A CDL venture with an environmentally-friendly replacement for a product commonly found in landfill impressed their potential investors by casually snacking on their product during the meeting. What slide could possibly have made such a clear point about the biodegradable, Earth-friendly nature of their product?

What do you want to avoid? Investors see many pitches - they are good at sussing out hyperbole and unexamined assumptions. Novice founders and MBA students are often guilty of looking for the biggest number they can quote about a market's size. But the market actually addressable by a particular product is much smaller, and a good investor sees through their exaggerations quickly. If you are selling a next generation powerpoint clicker, don't quote the size of the peripherals market and justify it by saying that there's no market research on the size of the sub-domain of clickers. What an investor will want to see is "guerilla market research" that finds ways to estimate the actual number of powerpoint clickers as a percentage of peripherals in a near-term geographical region that you could realistically tackle. Market size is so important to raising that you can't be lazy on this. Showing a seriousness and a systematic approach to identifying the size of the opportunity is a great way to demonstrate credibility. Analogously, stated goals for sales traction, new product launches, and technical milestones should be challenging but realistic. Remember, fundraising is a repeated game.

For deep tech companies which need multiple rounds of capital to build something that costs a lot to develop (lots of IP, hardware, complexity, etc.) it is important to plan out and state exactly what type of de-risking events you can buy with each round. In pharma, investors at each stage of regulatory approval are investing to get you to the point that you pass each regulatory threshold. In other fields you need to manufacture these milestones and come up with sound rationale for why new and different investors would want to invest at each stage and at higher valuations even if revenue is still far off. The more speculative the industry, the more you should get advice on the appropriate timeline and milestones used by ventures who successfully raised. You will also need to be cognizant that certain types of investors face constraints on the amount they can give and the timeline in which they hope they get a return - more specialized tech with unusual funding needs requires more specialized investors.

Even before a "formal" pitch meeting, it is important to have worked out the key issues an investor will care about, and to have practiced synthesizing these details clearly. Cold calling investors is rarely successful. Warm intros from founders in the same portfolio, or trusted luminaries in your industry, are much better. Once you have momentum meeting with a few potential investors, timing becomes important. A term sheet from one investor, discussed in the following section, is useful for negotiating with other potential

lead investors and for attracting follow-on investment to close out the round. Since it takes time to fundraise - it can easily be months between an initial intro and an agreement to invest - you want to ensure your momentum with different investors follows roughly the same timeline.

The best fundraisers also have an elaborate data room (that is, a password-protected virtual drive) filled with customer testimonials, signed contracts, full cap table information, milestone plans, pitch deck, and so on. The more organized they look at an early stage, the more trust an investor will have even if some of the details are lacking or speculative. It often takes a company until the Series A stage to even come close to truly getting the data room right, but founders who can achieve this level of professionalism at the seed stage are rare and desirable.

What if you are not raising money from a VC? Going through the exercise of preparing a pitch book is still useful. If you are crowdfunding, you will need to convince the crowdfunders that you are worth buying from, to convince potential employees that your firm has great potential (and hence that they should leave their stable, well-paid employment to join you), to convince suppliers that you are going to pay your bills, and so on. If you are bootstrapping, the employee and supplier issues still bind. Thinking rigorously about why your business model and technology have high growth potential, and about what experiments you want to run to derisk these factors, is still important.

A final point on your fundraising process: you should not ask potential investors to sign a non-disclosure agreement. They will not do it, you will look foolish, and even if they did sign one your ability to get a remedy in court as a small, cash-constrained firm is very limited. VCs literally meet with thousands of potential investments, and it is in their reputational interest to not reveal private information about the firms they meet with: the VC wants to ensure future deal flow is not scared off. Following an investment, incentives not to reveal proprietary information are even more well-aligned.

This point speaks to a broader issue that inexperienced startup teams, especially those in Canada, often face. They are under the incorrect belief that anyone they talk to is trying to steal their idea. Because of this, the team misses out on useful advisers, investors, partners, and customers. It is very rare (perhaps nonexistent?) for long-run successful businesses to have secrecy about their business model as their key competitive advantage. This isn't to say that there aren't unscrupulous counterparties in the world. A good adviser or investor will surely let you know about early customers that are notorious for using pilots and trials as a way to replicate good ideas in-house. However, when it comes to fundraising, being overly secretive is a *much* bigger problem than being overly transparent.

A Final Word

Startup finance, whether on the investor or the venture side of the table, is a complex topic which goes *well* beyond what could possibly be covered in a short set of notes like these. As you get experience working in this area, you will surely learn many more lessons. That said, financing is of such importance for startups, and often attacked with such naivete, that avoiding the most basic mistakes, and understanding the most basic options, will still prove quite valuable to you and the ventures you work with.