EQUITYZEN

Startup Valuation Guide

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Introduction

Valuation is the cornerstone of the investment process…

Before deciding to pull the trigger on an investment opportunity on EquityZen's platform or otherwise, an investor typically asks one simple question – what is it worth? Valuation is the process we use to answer that question. In theory, it prescribes a simple framework for evaluating the merits of an investment. If the price of an asset is less than its value, then buy. If not, don't buy (or, in some cases, you can sell short).

…but analyzing investments is challenging – especially for startups.

In practice, constructing a meaningful valuation analysis can be challenging. Many different frameworks exist, practitioners often disagree on the best ways to develop estimates and most models fail to capture all relevant investment considerations. In addition, valuation requires us to make assumptions about the future, and we never have perfect information to do so. These challenges can be even more acute for startups – EquityZen's bread-and-butter – where historical data and transparency are often limited and uncertainty over the future is higher.

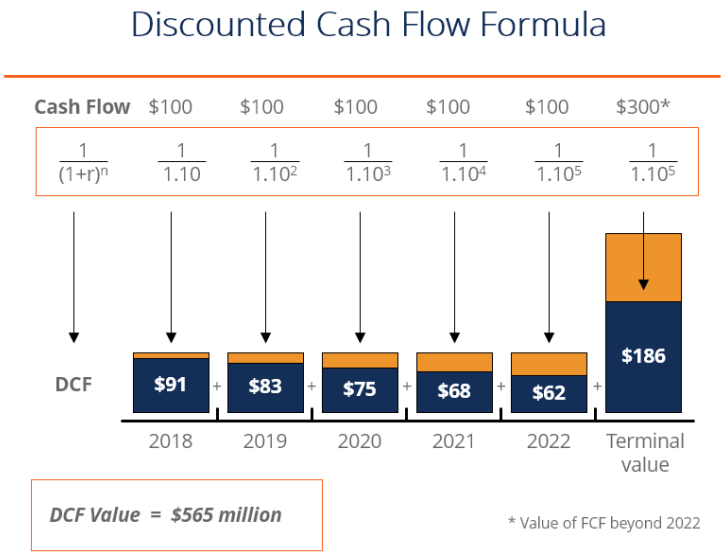
Enter the EquityZen Startup Valuation Guide.

This primer aims to tackle the key challenges in conducting valuation, with a special focus on startup companies. Our approach provides a straight-forward, practical guide for analyzing companies across various stages of business maturity and industries. In doing so, we hope to provide EquityZen clients with greater insight into both their investments and the value offered through our pre-IPO platform.

I. Valuation 101

Cash Flows Are King

Before we dive into start-up valuation, it's helpful to cover the basics on how investors think about corporate valuation generally. Financial theory generally holds that any asset's value (including an entire company) is a function of future cash flow generation and risk. The Discounted Cash Flow (or DCF) analysis is the key framework that captures this idea. Volumes have been written about corporate valuation and many valuation methods exist; however, most of these different methods essentially amount to alternative approaches to arriving at the same answer as you would get through a DCF.



Source: Corporate Finance Institute

The Discounted Cash Flow Method

How Does the DCF Work?

For simplicity's sake, we will demonstrate a DCF for an individual asset – the Tech Widget Factory* (TWF). TWF manufactures and sells tech widgets. What are tech widgets? ¯_(ツ)_/¯ But it doesn't matter – all you need to know for our example is that tech widgets generate revenue and have costs associated with their production.

The DCF framework requires the following steps to estimate TWF's value:

(1) Estimate cash flows that TWF will generate over an explicit forecast period (usually 5-10 years)
(2) Estimate the terminal value for TWF beyond the explicit forecast period
(3) Derive an appropriate discount rate for TWF
(4) Apply discount rate from step (3) to TWF's cash projections in steps (1) and (2) to determine current value

We discuss these steps further over the next several slides.

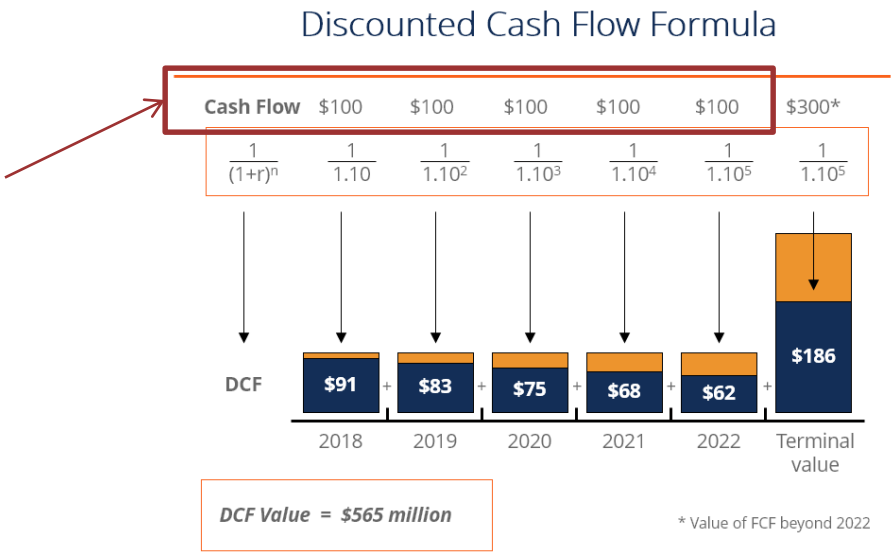
* To the best of our knowledge, this is not a real factory.

The Discounted Cash Flow Method

Step 1: Estimate cash flows that TWF will generate over an explicit forecast period.

The starting point of our DCF is to estimate the quantity of cash flows TWF can generate. The first part of this process is to project cash flows over an initial forecast period, usually 5-10 years. Why just 5-10 years? Quite simply, estimating cash flows year-by-year over an asset's entire life is generally not feasible. Assuming we expect TWF to be around for the long haul, we will need to cap off our explicit forecasts within some reasonable timeframe and use a terminal value to estimate total cash flow generation beyond this period (see that discussion next). We are going to use a five year initial forecast period in our example.

Initial forecast period



Source: Corporate Finance Institute

The Discounted Cash Flow Method

Step 1: Estimate cash flows that TWF will generate over an explicit forecast period (cont'd)

What are factors that we should think about when developing cash flow forecasts? At a basic level, we need to consider all of the cash inflows and outflows that we expect TWF to realize. Inflows include items like revenue while cash outlays might include the operating expenses and capital expenditures required to achieve that revenue – the old adage that you need to spend money to make money.

If you think this sounds a lot like a company's income statement, you would be correct. But there are a few adjustments we need to keep in mind if we are looking at TWF's historical income statement as a basis for our DCF projections. One is interest expense. When calculating a DCF, we add back TWF's interest expense. Why? Interest has to do with how an asset it financed (interest is paid to debt investors) and has nothing to do with TWF's inherent cash flow generation ability, which is what we are concerned about here. The second adjustment is depreciation. The reason we make this adjustment is that the economic impact of depreciation (declining asset value over time) should be captured in our capital expenditure estimates. The third category of excluded items are the impacts of accrual accounting – the scope of which is too large for our simple discussion here. Suffice it to say that a DCF should show cash inflows and outflows when they actually occur, and not taking into account any smoothing effects provided by Generally Accepted Accounting Principles (GAAP).

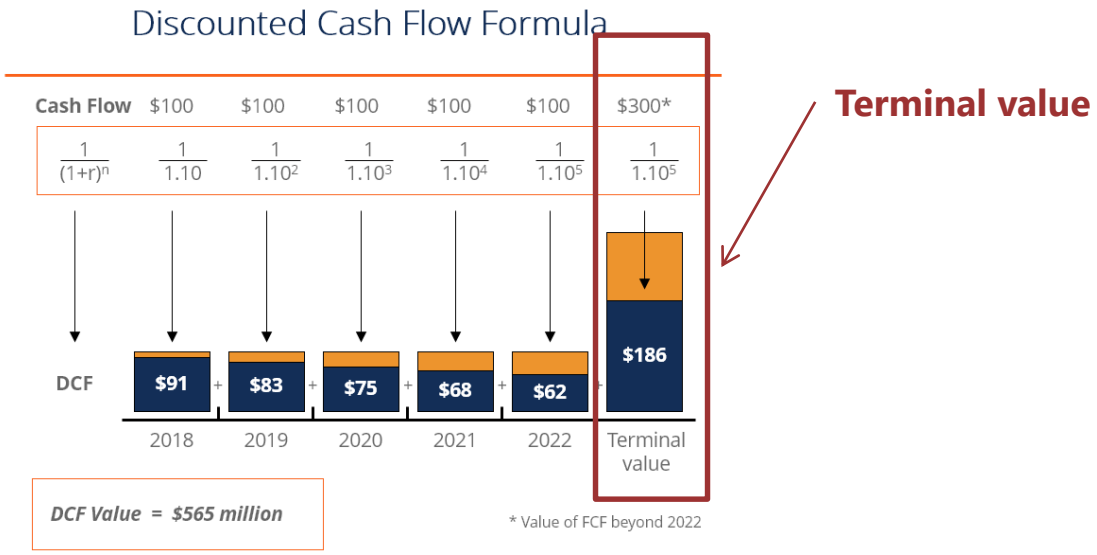
A cash flow forecast for TWF might look something like this – we have added notes on assumptions we used to build out the forecasts as well:

Tech Widget Factory	Years					
Cash Flow Forecast (in $M)	1	2	3	4	5	Assumptions:
+ Revenue	$ 100	$ 105	$ 110	$ 116	$ 122	TWF sales grow at 5%
- Expenses	$ (40)	$ (42)	$ (44)	$ (46)	$ (49)	Costs are stable at 40% of revenues
- Income Taxes (25%)	$ (15)	$ (16)	$ (17)	$ (17)	$ (18)	Tax rate = 25%
Net Income	$ 45	$ 47	$ 50	$ 52	$ 55	
+ Interest Expense	$ 5	$ 5	$ 5	$ 5	$ 5	TWF has $100M of debt oustanding at a 5% rate
+ Depreciation	$ 10	$ 10	$ 10	$ 10	$ 10	Depreciation = $10M/yr
- Capital Expenditures	$ (8)	$ (20)	$ (2)	$ (25)	$ (5)	CapEx is lumpy; assume larger outlays in years 2 & 4 to repair factory equipment
Total Cash Flow	$ 52	$ 42	$ 63	$ 42	$ 65	

The Discounted Cash Flow Method

Step 2: Estimate the terminal value for TWF beyond the explicit forecast period.

A terminal value quantifies cash flows that our factory will generate beyond the explicit forecast period. The length of this period can vary. Some assets have very defined useful lives – for example, a computer may last seven years at most. In those cases, the terminal value may be an estimate of the sale price or any other recovery value we could expect after the explicit forecast period ends (might be $0) . Other assets can remain operational indefinitely with sufficient investment in repairs and upgrades. For the remainder of this discussion, we assume TWF is an indefinite-life asset.



Source: Corporate Finance Institute

The Discounted Cash Flow Method

Step 2: Estimate the terminal value for TWF beyond the explicit forecast period (cont'd)

The calculation for terminal value of indefinite-life assets is based on the financial theory that dictates the value of a perpetuity (essentially, an annuity or security that lasts forever). Without getting into too many details, we must assume that our asset reaches a steady state growth for us to use the perpetuity formula. Other variables needed for terminal value include: (1) a cash flow estimate in the year immediately following the explicit forecast period and (2) the discount rate, which will be discussed in Step 3.

$$Perpetuity\ Value = \frac{First\ coupon\ amount}{Discount\ rate\ - Coupon\ growth}$$

$$Terminal\ Value = \frac{Cash\ flow\ in\ year\ after\ explicit\ forecast\ period\ ends}{Discount\ rate\ - Steady\ state\ growth}$$

Note that to estimate our initial cash flow forecast in the terminal period, we follow a process very similar to our prior slides. For TWF, our explicit forecast period was five years. We might assume revenue grows at 2% in year 6 and continues to grow at 2% thereafter. We will assume expenses remain at 40% of revenue, interest expense and tax rates remain constant and, finally, that capital expenditures of $5M a year are required to sustain 2% growth. That gets us to $66M in cash flow. If our discount rate is 12%, our terminal value would look like this:

$$Terminal\ Value = \frac{\$66M}{12\% - 2\%} = \$658M$$

The Discounted Cash Flow Method

Step 3: Estimating a discount rate.

A discount rate adjusts cash flows for two key realities of the value of future cash flows to an investor – interest rates and risk. First, let's discuss the interest rate adjustment. You wouldn't invest $1M into a venture like TWF if you thought it would be worth $1M at the end of 5 years. A better bet would be to put that money into a safe bank account where you could earn a rate of interest. In finance, this is often called the time value of money and we account for this by discounting cash flows by a benchmark interest rate (usually the so-called risk-free rate). The second discount factor – risk – is also straight forward. You aren't guaranteed to realize future cash flow estimates. For a relatively safe investment (say a bond backed by a credit-worthy company like Microsoft or Apple) you might require only a modestly higher rate of return to induce you to shift money from the safety of a bank account into that investment. For a risky investment where future cash flows are more uncertain – say, manufacturing and selling tech widgets – you would probably require a much higher expected rate of return vs. your bank account. The risk adjustment to the discount rate accounts for this.

In practice, there are several ways to estimate a discount rate. Entire books have been written on this subject alone and a full discussion is outside of the scope of this introduction. For interested clients, some of the most prominent methods include the Capital Asset Pricing Model (CAPM), Arbitrage Pricing Theory (APT) and market-based approaches. For the sake of simplicity, let's say we have used a market-based approach to estimate TWF's discount rate at 12%.

The Discounted Cash Flow Method

Now that we have all of our DCF components, the last step is to put them all together:

1. We start with our explicit cash flow forecasts and terminal value – our "non-discounted cash flows".
2. We determine the value of our non-discounted cash flows today by multiplying each by a discount factor. The discount factor is essentially the inverse of one plus the discount rate, compounded for the number of years that will elapse between now and when the expected cash flow will be received. For example, the discount factor for year 2's cash flow is $\frac{1}{(1+12\%)^2}$ or ~80%.
3. Once we appropriately discount all cash flows, our DCF value is simply the sum of all of the discounted cash flows. In this case, $561M.

Tech Widget Factory	Years					
Cash Flow Forecast (in $M)	1	2	3	4	5	6
+ Revenue	$ 100	$ 105	$ 110	$ 116	$ 122	$ 124
- Expenses	$ (40)	$ (42)	$ (44)	$ (46)	$ (49)	$ (50)
- Income Taxes (25%)	$ (15)	$ (16)	$ (17)	$ (17)	$ (18)	$ (19)
Net Income	$ 45	$ 47	$ 50	$ 52	$ 55	$ 56
+ Interest Expense	$ 5	$ 5	$ 5	$ 5	$ 5	$ 5
+ Depreciation	$ 10	$ 10	$ 10	$ 10	$ 10	$ 10
- Capital Expenditures	$ (8)	$ (20)	$ (2)	$ (25)	$ (5)	$ (5)
Total Cash Flow	$ 52	$ 42	$ 63	$ 42	$ 65	$ 66

Discount Rate	12%
Steady-state growth	2%

		1	2	3	4	5	Term. Value
{A}	Undiscounted Cash Flows	$ 52	$ 42	$ 63	$ 42	$ 65	$ 658
[B]	Discount Factor	89%	80%	71%	64%	57%	57%
[C]	Discounted Cash Flows (A * B)	$ 46	$ 34	$ 45	$ 27	$ 37	$ 373
	Sum of Discounted Cash Flows (sum of line C)	$ 561					

Alternative Approaches

If nothing else, it should be evident from the previous eight slides that the DCF, while theoretically sound, can be cumbersome to implement. For this reason, investors have developed numerous alternative approaches to valuation over the years. These approaches boil down into two broad categories – intrinsic and relative.

Intrinsic valuation

- Intrinsic valuations are bottom-up frameworks that look to gauge asset value solely on the basis of that asset's fundamental properties.
- The DCF is among the most prominent intrinsic value approaches. Net Asset Value and Book Value/Liquidation Value are other common methods.

Relative valuation

- Relative valuation methods look to estimate an asset value based on the market value of comparable assets.
- The most prominent example of relative valuation are multiples-based analyses (e.g. price-to-earnings, EV-to-EBITDA, price-to-sales).

The basic intuition of these valuation methods is the same – in each, asset value is a function of cash flow and risk. Further, as we mentioned earlier, each method should yield the same value as the DCF if done properly. Nevertheless, as we will explain in later slides, relative valuation can be much faster to implement in practice and tends to be more commonly used in the investment community.

Valuing Entire Companies

In our DCF example, we focused on one asset – the Tech Widget Factory. For a collection of assets (i.e., a company) the process is no different. A company's value can be thought of as the sum of all of the individual DCFs (or multiples-based analyses) for each asset or group of assets it owns – factories, stores, product lines, etc. Many times, a company's assets are similar enough where one DCF or other valuation analysis suffices to evaluate its cash flow streams. In other cases, we can achieve a more accurate result by grouping the company's assets into different categories based on their growth and risk profiles and doing a separate valuation for each group.

Two categories we think a lot about at EquityZen are existing assets and growth (or emerging assets).

- Existing assets: These are generally assets that have established cash flow histories – e.g. a factory that has been in operation for 10 years. While no forecast is 100% accurate, existing asset cash flow estimates are generally higher quality. Why? These assets are generally more mature, resulting in more predictable growth. Existing assets comprise the majority of the asset base for publicly-traded companies.

- Growth/emerging assets: These are assets with no or limited cash flow histories. Growth rates are likely higher vs. existing assets. With no operating track record, though, cash flow projections can be subject to considerable uncertainty and thus quality is often poor. These assets require higher discount rates than broader industry aggregates given their higher risk profile. Most start-up assets fall into this category, which presents considerable challenges to traditional valuation frameworks (*see* Section II for more details).

II. Challenges of VC Valuation

Challenges of Intrinsic Valuation

As discussed, startups have limited histories and are prone to failure, all of which makes valuing startups quite challenging

Existing Asset Valuation	• Standard approach to valuing existing assets is to review the asset's historical financial statements and extrapolate future cash flows from these assets • However, startups often lack sufficient historical data to assess future revenues, particularly in changing macro-economic or competitive conditions • Among startups, existing assets are also a small percentage of overall value, which is largely tied up in future growth
Emerging Asset Valuation	• The majority of a startup's value comes from its investments in emerging assets, which leads to several challenges • Limited financial history hinders VCs in estimating revenue growth from emerging assets as well • Even if revenues can be estimated, startups often report losses well into the future, which makes estimating future operating income and profit margins difficult • Finally, because the current return on capital is usually negative for startups, assessing the quality of a startup's growth (i.e., how much a startup's return on capital exceeds a startup's cost of capital) is without any basis
Identifying Discount Rates	• Utilizing standard approaches for identifying a company's cost of capital (i.e., discount rate), such as CAPM, requires market data and pricing information • With market data and pricing available, a DCF can estimate the cost of equity capital by comparing a target's market price against the general market or a stock index; on the debt cost side, a DCF can refer to publicly traded debt • Startups, however, will not have publicly traded equity or debt, and similar companies will likely also be private, so extrapolating discount rates from them for your target company is also impossible
Terminal Value	• The Terminal Value accounts for most of the overall value in a DCF, and is only an appropriate calculation for companies that will reach stable growth • Achieving stable growth for a startup is already a huge question mark given the high failure rates, as is estimating when a startup will reach stable growth • Today, even many public tech companies are high growth and continue to generate losses, such as Snap and Tesla

Challenges of Relative Valuation

Challenges faced by VCs in performing intrinsic valuations carry over to relative valuation methodologies

Common Relative Valuation Metrics	• Relative valuations have to be scaled to a common metric • The most conventional metrics are ratios, such as Price / Earnings, EV / EBITDA and EV / Sales • However, because startups often have negative operating income, earnings and EBITDA multiples cannot be computed • Moreover, even if a startup is sales positive, sales multiples are more opaque than EBITDA multiples, as they do not give investors a view into cost structures of comparable companies
Finding Similar Startups	• Typically, the company comparables and transaction comparables methodologies (as discussed later on) value a company relative to other publicly listed companies in the same sector • With private startups, finding the right universe of comparable companies and transactions is difficult due to a lack of publicly available information on financials and valuation • Using public companies vis-à-vis startups for valuation purposes is also problematic, as public companies will typically be much larger and have lower growth prospects as well as lower risk profiles
High Failure Rates	• As with DCF valuations, the high failure rate of startups makes valuation using relative methodologies challenging • The relative value of a startup increases with a higher multiple, such as EV / Sales or EV / EBITDA, which investors would also expect to increase the likelihood of survival • However, startups both grow and fail at such high rates that assigning a multiple to a startup to discern relative value may not have much basis
Equity Claims & Illiquidity	• As with a DCF, differences in investment terms can also greatly impact the value of a startup's issued equity (we cover this in more detail later on) • Investment rounds come with different liquidation preferences, dividends, priority schemes and other protective measures that make it more difficult to assign just one equity value among different series of stock • Finally, the relative illiquidity of startup equity also has to be taken into account, and pricing an illiquidity discount is a challenge of its own

III. The EquityZen Approach to Valuing Startups

The EquityZen Approach

At EquityZen, we believe that the methodologies used to value a particular startup should be tailored to that startup's financing cycle

In an ideal world, valuing a startup would be like valuing an established, public company.

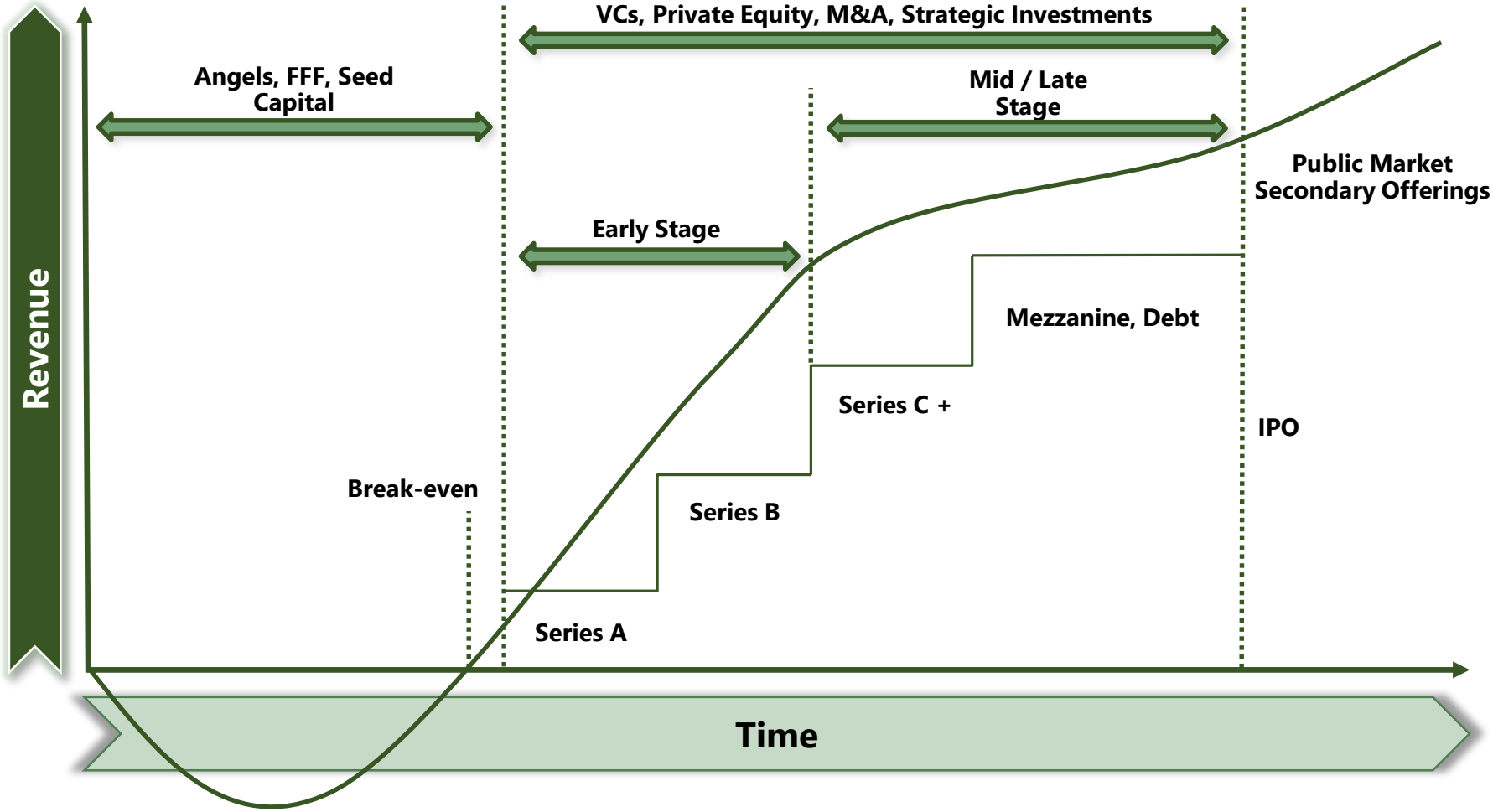
Public companies typically have longer operating histories and are also required to make quarterly and annual financial disclosures to the public. Unsurprisingly, significant historical financial data greatly helps inform our ability to make more accurate financial forecasts for a DCF analysis, since we have a much better understanding of historical revenue and cost drivers. Moreover, public company filings include management's prospective assessment of the business, which can also be helpful in forecasting. Finally, public disclosures and trading histories shed light on a company's cost of capital, making it easier to hone in on proper discount rates.

As already discussed, in addition to a lack of publicly available information, startups vary greatly in terms of operating and financing history, which creates additional valuation complications. Generally, the closer a startup is to an IPO, with presumably several years of positive revenue and a business track record, the more easily it can be valued in a DCF analysis like a public company. Earlier stage companies, which are more likely to have negative free cash flow or may even be pre-revenue, cannot be valued with a DCF analysis and thus valuations rely on more "qualitative" factors.

In the following slides, we cover a startup's operating and financing cycle and how that intersects with the various valuation methodologies we mentioned in Section I. Subsequently, we walk through concrete examples of several valuation methodologies.

The Startup Financing Cycle

While every startup takes a unique path, the below presents an illustrative startup financing cycle as a company goes from pre-revenue to a mature public company



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The EquityZen Approach

Based on a startup's operating and financing stage, we will utilize a mix of valuation methodologies to most accurately hone in on a startup's value

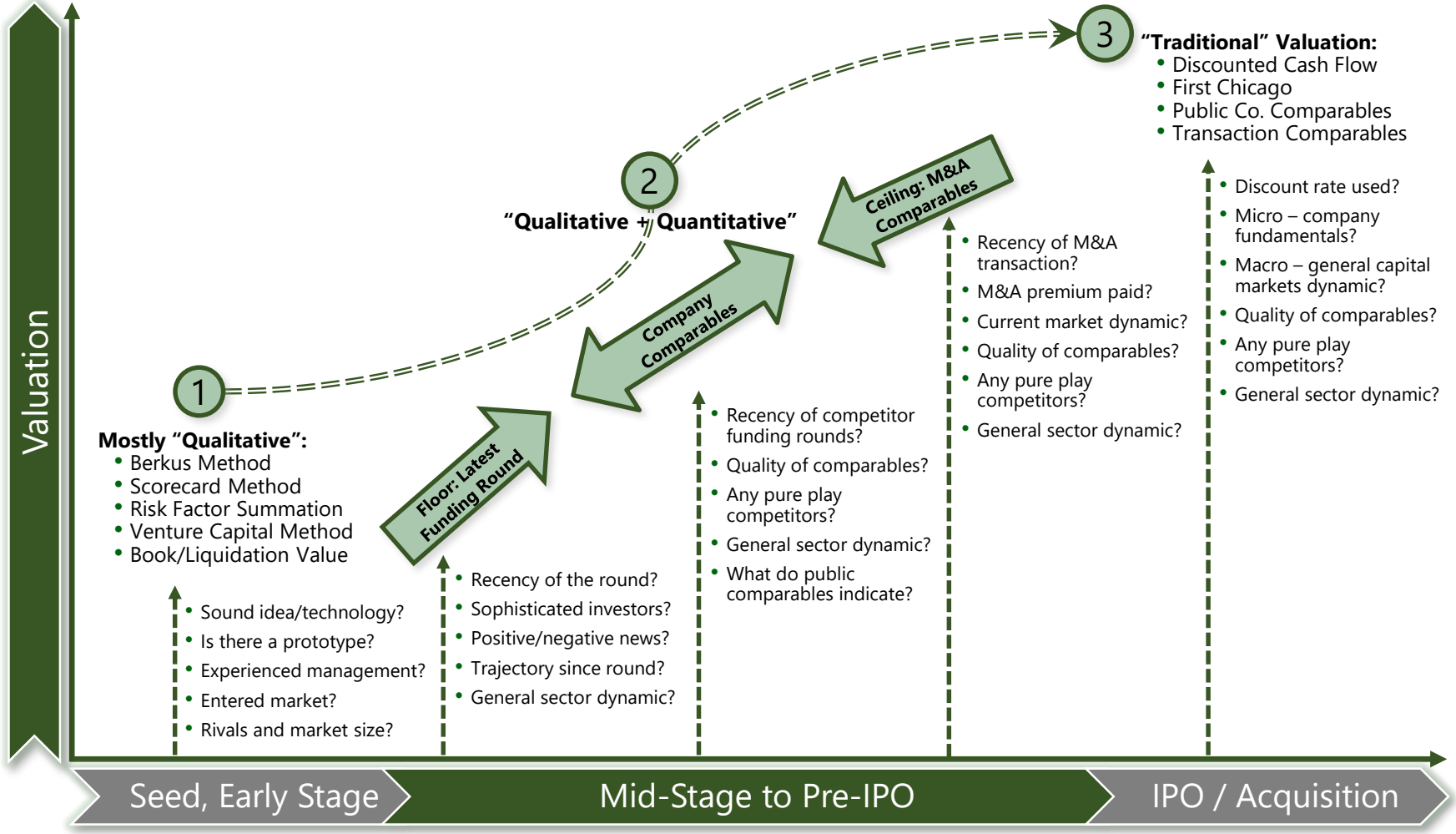
At what stage is the company?	What are the characteristics of the company at this stage?	Which valuation methodologies make the most sense to use at this stage?
• Angel Round • Seed Stage Round • Series A Round	• Often pre-revenue • May lack minimum viable product • Very limited operating histories • Future value highly speculative	• Berkus Method • Scorecard Valuation • Risk Factor Summation • Venture Capital Method • Book/Liquidation Value (floor valuation)

• Mid-to-late stage
  ○ Series B/C Round and beyond
  ○ Debt financing
	• Launched product
	• Generating and growing revenue
	• Likely still free cash flow negative
	• Capital needed to scale team and operations
		• Public / Private Company Comparables
		• Public / Private Transaction Comparables
		• Latest Financing Round (good data point)

• Approaching liquidity event
  ○ IPO preparation
  ○ M&A opportunities
	• May have several products in market
	• Capital providers likely private equity, other large institutions and strategic investors
	• May have positive free cash flow
	• Hiring for key roles to go public, e.g., CFO
		• Discounted Cash Flow
		• First Chicago Method
		• Public Company Comparables
		• Public Transaction Comparables

Putting It Together—Valuation Timeline

At EquityZen, we have plotted the various valuation methods along a company's typical financing cycle to create a "Valuation Timeline" framework to guide our valuations. The bullet points at each stage below are factors that move valuations up or down.



A. Seed & Early Stage:

Berkus Method
Scorecard Valuation
Risk Factor Summation
Book & Liquidation Value
Venture Capital Method

The Berkus Method

Illustrative Berkus Method Example	
If Element Exists:	*Add to Value up to:*
Sound Idea	$500K
Prototype	$500K
Quality Management	$500K
Strategic Relationships	$500K
Product Rollout or Sales	$500K
✓	$500K
✓	$250K
✓	$500K
✓	$100K
✓	$0K
Total Valuation:	**$1.35M**

Description: We think of the Berkus Method as the foundation of seed and early stage valuation methodologies. Named after renowned venture capitalist and angel investor, Dave Berkus, the methodology relies on his premise that "fewer than one in a thousand start-ups meet or exceed their projected revenues." Given financial projections tend to be inaccurate at an early stage company, this method instead focuses on risk and assigns a financial valuation to each of five major elements of risk faced by young companies: Soundness of Idea, Prototype, Quality Management Team, Strategic Relationships, and Product Rollout or Sales.

How it works:

1. To the company you are valuing, add up $500K in value for each of the following risk-reduction elements to the extent they are present:
   - Sound idea *(basic value)*
   - Prototype *(reducing technology risk)*
   - Quality Management Team *(reducing execution risk)*
   - Strategic Relationships *(reducing market risk)*
   - Product Rollout or Sales *(reducing production risk)*
2. $500K per risk factor is the most that can be "earned," allowing for a maximum $2.5M valuation for a very early stage company, but investors can assign lower values

Key Advantages:

- Straight-forward and simple-to-use methodology
- Good for pre-revenue or very early stage businesses who lack financial metrics
- Provides a flexible framework, which Dave Berkus says should be altered to emphasize those risks most important to an investor

Key Disadvantages:

- Method is inherently simplistic, as there are a number of factors that could go into a startup valuation
- Ignores geography and market / sector dynamics

Scorecard Valuation

Comparison Factor	Weight %	Comparison %	Factor = (W*C)
Management Team Strength	30%	125%	0.375
Size of the Opportunity	25%	150%	0.375
Product / Technology	15%	100%	0.150
Competitive Environment	10%	75%	0.075
Marketing / Sales / Partnerships	10%	80%	0.080
Need for Additional Investment	5%	100%	0.050
Other Factors	5%	100%	0.050
Factor Sum			**1.155**
Average Company Valuation			**$2.5M**
Target Company Valuation Using Factor			**$2.9M**

Description: Similar to the Berkus Method, Scorecard Valuation analyzes a number of factors to determine the valuation of early stage startups. This method requires determining the average valuation of pre-revenue companies in a particular geographic region. From there, you can value your target relative to the average based on the following factors and weighting percentages: Management Strength (30%), Size of Opportunity (25%), Product / Tech (15%), Competition (10%), Marketing / Sales / Partnerships (10%), Additional Investment Needs (5%), and Other (5%).

How it works:

1. Determine the average valuation of pre-revenue companies in the same region as the target company
2. Compare the target company to similar companies in your region using the factors and weighting above. Under the "Comparison %" column to the left, assume 100% is the average for similar companies, and then assign a premium or discount to the target
3. Multiply each factor's "Weight %" by the relevant "Comparison %" to get your factors
4. Sum the "Factor" column and multiply that sum by the average company valuation to imply your target's valuation

Key Advantages:

- Good for pre-revenue or very early stage businesses
- Provides a more fulsome framework than other early-stage valuation methodologies, like the Berkus Method

Key Disadvantages:

- Finding data on the average pre-revenue company valuation in a geographic locale may be difficult
- "Average" valuations are often distorted by outliers
- Method is inherently qualitative due to lack of operating history and speculative nature of early stage companies
- Method is quite simplistic and does not consider all risk factors

Risk Factor Summation

Illustrative Risk Factor Summation Example		
Avg. Pre-Revenue Valuation in SF Area: $2.5M		
Risk Factors:	**Score**	**$ in 000**
Management	+2	$500.0
Stage of Business	+1	250.0
Political	-1	(250.0)
Manufacturing	0	0.0
Sales & Marketing	+1	250.0
Funding	-1	(250.0)
Competition	-1	(250.0)
Technology	+2	500.0
Litigation	0	0.0
International	0	0.0
Reputational	+2	500.0
Potential Lucrative Exit	+1	250.0
Company Valuation:		**$4,000.0**

Description: The Risk Factor Summation Method analyzes a broad set of risk factors relevant to pre-revenue and other early stage startups. This method reflects the premise that the higher the number of risk factors present, then the higher the overall risk in achieving a strong exit. "Management Risk" is most important at the early stages, but this method also seeks to quantify risks related to: Politics, Manufacturing, Sales/Marketing, Funding, Competition, Tech, Litigation, International, Reputation and Business Stage.

How it works:

1. Similar to the Scorecard Method, Risk Factor Summation requires you to start with the average valuation of pre-revenue companies in your geographic region
2. From there, each risk factor in the Description above is scored as follows:
    - +2 is very positive for growing the startup and exiting successfully
    - +1 is positive
    - 0 is neutral
    - -1 is negative for growing the startup and exiting successfully
    - -2 is very negative
3. Then adjust the average valuation positively or negatively by $250K for every 1 point added to or deducted from the target startup

Key Advantages:

- Considers a much broader set of factors than other seed and early stage valuation methodologies, such as Berkus and Scorecard
- Based in local data concerning average pre-revenue company valuations

Key Disadvantages:

- Finding data on the average pre-revenue company valuation in a geographic locale may be difficult
- "Average" valuations are often distorted by outliers, positively or negatively
- Method is inherently qualitative due to lack of operating history and speculative nature of early stage companies

Book Value & Liquidation Value

Description: Book and liquidation value are similar methodologies that differ only in their assumed transaction circumstances. Book value refers simply to the net worth of a company as it stands today—i.e., the tangible asset value less any liabilities on the company's balance sheet. In contrast, liquidation value is an illustrative methodology that assumes a company is going out of business and all of its assets are liquidated. Liquidation value is just book value but will likely yield a lower valuation due to the sale conditions.

How it works:

1. Total up the value of all of a company's tangible assets on its balance sheet
2. Next, total up all of the liabilities and subtract them from the tangible assets
3. Now you're left with the net tangible asset value
4. If you're performing a liquidation analysis, go a step further and assign a discount to each tangible asset line item on the balance sheet
    - Discounts due to the liquidation circumstances will vary based on the industry, market conditions and type of asset
    - Appraisers typically provide both "orderly" and "forced" liquidation values, the later being lower due to the forced nature of the sale

Key Advantages:

- Provides the most directly quantifiable valuation of a company -- tangible assets, less a company's balance sheet liabilities
- Liquidation value provides investors with a clear sense of risk by providing a floor recovery

Key Disadvantages:

- Highly simplistic valuation methodologies that do not factor in intangible asset value and future growth potential
- Not very relevant for startups, particularly in the early stages, where value lies primarily in future growth and also intangible assets, like intellectual property

Illustrative Company Balance Sheet		Liquidation Value			
Current Assets *($ in M)*		Orderly Discount	*$ in M*	Forced Discount	*$ in M*
Cash	$5.00	*100%*	$5.00	*100%*	$5.00
Accounts Receivable	8.00	*80%*	6.40	*50%*	4.00
Inventory	12.00	*50%*	6.00	*30%*	3.60
Property & Equipment	50.00	*75%*	37.50	*65%*	32.50
Total Assets	**$75.00**		**$54.90**		**$45.10**
Current Liabilities					
Notes Payable	$5.00		$5.00		$5.00
Accounts Payable	10.00		10.00		10.00
Long-Term Debt	20.00		20.00		20.00
Total Liabilities	**$35.00**		**$35.00**		**$35.00**
Net Book Value	**$40.00**		**$19.90**		**$10.10**

Venture Capital Method

Startup Widget Co.	
Post-Money Val. = Terminal Val./ (1+ Hurdle Rate) ^ Years	
Terminal Value	$10,000,000
Hurdle Rate	50%
Years Until Exit	5
Post-Money Valuation	$1,316,872

Description: The Venture Capital Method was first described by Professor Bill Sahlman at Harvard Business School in the 1980s and has been slightly modified since. This method uses the potential exit value of a company and the target rate of return of an investor to back into a post-money valuation.

How it works:

1. First, determine the terminal value (exit value) of the startup. In our example, we assume that the company will exit at a valuation of $10 million.
    a. The terminal value can be determined through a number of methods. Typically, investors can project out revenue for 5-10 years and then imply a valuation in the last projection year using average sector P/S multiples (*see* Section III.B. for details)
2. Estimate the time it will take before an exit is reached (usually through an IPO or acquisition). In our example, we assume that it will take Startup Widget Co. 5 years to reach an exit
3. Using the Post-Money Valuation formula, discount the terminal value back to present value using the hurdle rate (investor's target rate of return)
4. This will give you the current post-money valuation; to find the pre-money valuation, simply deduct the investor's contemplated funding amount

Key Advantages:

- Takes into account the growth potential of a startup
- Allows investor to set own hurdle rate in valuation analysis

Key Disadvantages:

- Difficult to determine underlying assumptions, such as terminal value
- Does not account for follow-on issuances and resultant dilution

B. Mid-Stage to Pre-IPO:

Public Comparables
Transaction Comparables

Public Comparables Analysis

Public Widget Company Comparables			
($ in M)	Valuation	Revenue	P/S
Company 1	$ 5,000	$ 200	25.0x
Company 2	$ 10,000	$ 350	28.6x
Company 3	$ 8,000	$ 300	26.7x
Company 4	$ 2,000	$ 80	25.0x
Sector Average P/S:			26.3x

Start-up Widget Company		
[1]	Revenue	$ 150
[2]	Avg. P/S	26.3x
= [1] * [2]	Valuation	$ 3,946

Description: A comparables-based analysis (or multiples-based analysis) expresses the value of an asset relative to some financial or operating metric (e.g. sales, earnings, users) of other similar assets. The idea here is that similar assets should be valued at similar prices.

How it works:

1. Determine a set of peer companies similar to the one you are analyzing. In our example to the left, we look at a fictional set of widget companies
2. Calculate an average multiple for the chosen peer group by taking the ratio of valuation to a relevant fundamental or operating metric. In startup land, we often use sales as the relevant operating metric. Looking at our example again, we calculate how each widget company's valuation compares to revenue (also known as price to sales or P/S).
3. Multiply the revenue (or other relevant metric) for the company you are analyzing by the average sector multiple. The result is the "justified" valuation for your company

Key Advantages:

- Easy to implement
- Widely-used and easily understood by other market participants

Key Disadvantages:

- Average sector multiples can be impacted by temporary market conditions or other factors
- Doesn't always capture all of the factors that drive valuation differentials (i.e., margins, growth rates, superior management teams, capital structure). For example, a company with stronger growth prospects might warrant a higher multiple than the sector average

Transaction Comparables Analysis

Public Widget Company M&A Transactions				
($ in M)	Transaction Px		Revenue	P/S
Company 1	$	6,000	$ 200	30.0x
Company 2	$	11,000	$ 350	31.4x
Company 3	$	9,200	$ 300	30.7x
Company 4	$	2,100	$ 80	26.3x
Sector Average P/S:				29.6x

Start-up Widget Company			
[1]	Revenue	$	150
[2]	Avg P/S		29.6x
= [1] * [2]	Valuation	$	4,438

Description: Similar to a company comparables analysis, transaction comparables express the value of an asset relative to some financial or operating metric (e.g., sales, earnings, users) of similar assets. The key difference is that transaction multiples are based on M&A valuations, rather than public trading valuations. As acquirers often pay premiums for M&A targets, transaction comparables are often higher than public company comparables.

How it works:

1. Determine a set of peer companies similar to the one you are analyzing that were recently acquired
2. Calculate the average multiple for this group by taking the ratio of the transaction price to a relevant fundamental or operating metric. Again, in startup land, we often use sales as the relevant operating metric.
3. Multiply the revenue (or other relevant metric) for the company you are analyzing by the average transaction multiple. The result is the "justified" valuation for your company.

Key Advantages:

- Easy to implement
- Widely-used and easily understood by other market participants

Key Disadvantages:

- Past transactions may not reflect current valuation conditions
- Transaction prices, and thus transaction multiples, might be impacted by synergies, intangibles and other factors that are particular to that transaction and not applicable across the sector broadly

C. IPO- / Acquisition-Ready:

Discounted Cash Flow (*see* Section I)
First Chicago Method
Public Comparables (*see* Section III.B.)
Transaction Comparables (*see* Section III.B.)

First Chicago Method

Description: A combination of a DCF and relative valuation, the method requires three different sets of projections of company performance in a DCF and resultant valuations: (1) a best case scenario (financial performance exceeds expectations), (2) base case scenario (financial performance meets expectations), and (3) worst case scenario (financial performance worse than expected performance). From there, you decide on the probability of each scenario happening. The target's valuation is the probability-weighted sum of each case.

How it works:

1. Complete a DCF analysis, but with three cases for financial performance—best case, base case, and worst case—which will yield three different valuations
2. Determine the probabilities of each of the three scenarios occurring
3. Multiply each of the three different valuations by the probability of each scenario occurring
4. Add the probability-weighted valuations together to arrive at a single valuation for the company

Key Advantages:

- Probability adjusts a DCF valuation
- Offers more flexibility than a DCF by sensitizing for different revenue and cost drivers

Key Disadvantages:

- Suffers the same challenges inherent in a DCF, such as formulating reasonable financial projections and discount rates
- Complicates a DCF further by adding another variable—probability of achieving the three different cases

Illustrative First Chicago Method Example

DCF Cases	Probability %	Valuation *($ in M)*
Base Case	65%	$100.0
Worst Case	25%	$45.0
Best Case	10%	$160.0
Weighted Company Valuation:		**$92.3**

IV. Other Valuation Considerations

Other Valuation Considerations

The valuation methodologies covered above unsurprisingly focus on a company's financial metrics and assets.

However, there are a number of valuation considerations that VCs factor into an investment decision that are not readily derived from company financial statements and projections or a thorough understanding of the business and market. These factors should theoretically be captured within a company's valuation as derived using the methodologies above, but they can be difficult to predict and quantify. We recommend that clients layer these considerations on top of any quantitative valuation analysis they perform.

Other key considerations include:

- **Dilution:** earlier investors should expect that their ownership percentage will decrease over time as the company raises additional capital from new investors
- **Preferred Stock Rights & Onerous Terms:** every series of preferred stock may have distinct terms and privileges compared to earlier series, making it potentially less advantageous to hold previously-issued stock
- **Failure Rates:** every startup is unique, but the common rule of thumb is that 90% eventually fail
- **Non-Financial Signals:** the human capital factor is extremely important, so investors should pay attention to management, board and existing investor composition

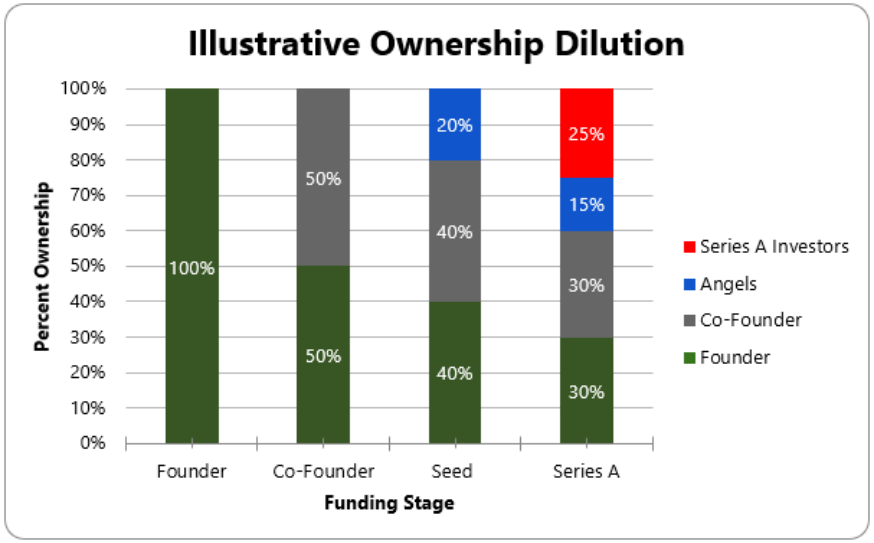
Ownership Dilution

Dilution can meaningfully impact startup returns. Dilution typically occurs when a startup raises a new round of financing. Existing investors will often see their percentage ownership reduced as new investors enter the cap table (even though the value of these ownership stakes in dollar terms may increase). We recommend that investors adjust valuation for potential future dilution to better capture the percentage of total future company value that they will be entitled to receive upon IPO/acquisition.

Key Considerations: Common sources of dilution come from issuances of:

- New Preferred Stock (typically occurs during new round of financing)
- New Common Stock (typically to co-founders)
- New Stock Options (typically to new hires)
- Stock Warrants (typically to lenders)
- Convertible Debt (will dilute ownership when converted to equity)

A typical rule of thumb states that each valuation round will result in 20-30% dilution for existing investors. Most startups will raise at least 4-5 rounds before an exit. A formula for adjusting for dilution could look something like:



$$Adjusted\ Valuation = Unadjusted\ Valuation \times (1 - \%\ dilution\ assumption\ per\ round)^{\#\ financing\ rounds\ remaining}$$

EQUITYZEN

Preferred Stock Rights & Onerous Terms

Not all stock is created equal and different rights and privileges assigned to certain classes of shares can impact how we value them. We look at a few of the most common rights attached to VC-backed company shares and note how valuation should be adjusted to account for them.

Liquidation Rank: This refers to the order in which investors, or debt holders, get paid in the event of company liquidation or bankruptcy. This is a common preferred stock protection. All else equal, share classes with higher liquidation rank will have higher valuations. Common stock typically has the lowest liquidation rank.

Accumulating Dividends: While startups typically do not pay dividends on preferred stock, certain companies will declare dividends that accumulate over time and are payable at a later date. These dividends provide preferred shareholders additional return potential. Investors should adjust a startup valuation for any dividend liabilities owed to other share classes in the future.

Participating Rights: Preferred shares are generally entitled to a minimum distribution amount (their liquidation preference) from acquisition or bankruptcy proceeds. Participating rights will entitle these shareholders to additional distributions on top of their liquidation preference at the expense of common shareholders. If you are investing in startup common stock, you may need to adjust your valuation lower to account for this additional payment to preferred.

Ratchet: Ratchets are provisions that provide certain share classes with down-round protection (i.e., where the company raises a subsequent round of financing, which can include IPO, at a lower price). With a ratchet, the company is required to issue additional shares to covered share classes in a subsequent down-round. Investors should always check if any share classes have ratchet provisions. All else equal, shares with ratchet provisions will have higher valuations than shares without this protection.

Startup Failure Rates

Startups have higher failure rates than more mature, established companies. As we have discussed, valuation is a function of not just cash flows, but risk. We recommend investors should adjust startup cash flow estimates for probability of failure to take this risk into account.

Key considerations: The statistic most commonly thrown around is that 9 out of 10 startups fail. However, there are many different ways that failure can be defined such as:

1. Bankruptcy/ liquidation of all assets
2. Inability to deliver projected return on investment

According to research from the Harvard Business School, if failure is defined as the former, **30% to 40%** of venture backed startups fail. If failure is defined as the later, more than **95%** of startups fail.

Failure rates also vary depending on stage of investment, as seen in the chart to the right.

Funding Sequence	Failure To Raise Next Round	Failure to Exit
Seed	79.4%	97.0%
Series A	50.0%	88.7%
Series B	55.8%	84.1%
Series C	62.1%	80.7%
Series D	66.4%	78.1%
Series E	69.2%	74.3%
Series F	75.0%	74.5%
Series G	82.6%	72.4%

Non-Financial Signals

Key decision makers at a startup can have a meaningful impact on company value by providing effective strategic vision and leadership in execution. All else equal, startups with stronger management teams, board members and partners are more likely to see favorable outcomes and may command premium valuations. By contrast, a startup with a weak management team or board should likely be assigned a discounted valuation.

Management Team: Below are several questions to consider when evaluating a startup's management team:

- Does the founding team have a proven track record behind them?
- Does the team demonstrate expertise in their field?
- Do the skills of the founders complement each other?

Financial Backers/Board Members:
Money in the world of VC often does not come unattached as investors usually carry a board seat with the company. Each venture capital firm and partner can bring in unique insights and connections within the field that the startup operates in.

Strategic Partners: Startups can also raise money from non-traditional VC firms to form strategic partnerships to leverage another's company's resources. Similar to the connections that VC partners can bring a startup, it is important to understand the resources, technology, networks, etc. that a partnership can bring.

V. Conclusion

Conclusion

There is no one-size-fits-all approach to corporate valuation – and startup valuation is no exception. At EquityZen, we triangulate our valuation using a mix of methodologies best suited towards a particular startup's industry, growth stage and disclosure. On top of that, we layer on other considerations like dilution, management and failure rates that may not fit neatly into any established valuation method. This approach may still yield a variety of conclusions and opinions – that is part of the fun of investing. Nevertheless, we hope this primer will provide a firmer foundation for practitioners as they join us on our quest of unlocking value in the pre-IPO markets.

Conclusion

About EquityZen
EquityZen Inc. (equityzen.com) is a rapidly-growing marketplace for making investments in late-stage private technology companies. EquityZen provides accredited investors, wealth advisors, and institutional money managers access to private markets.

With over 5,000 private placements completed in 100+ premier private companies, EquityZen is building private markets for the public. Investors in the company include behemoths from Silicon Valley and Wall Street, like Draper Associates and WorldQuant Ventures.

Cautionary Note Regarding Forward-Looking Statements
The matters described herein may contain forward-looking statements. These statements include, but are not limited to, statements about research on late-stage, venture-backed companies. We caution that these statements are not guarantees of future performance. Actual results may differ materially from those expressed or implied in the forward-looking statements. Forward-looking statements involve a number of risks, uncertainties or other factors beyond EquityZen's control. We undertake no obligation to release any revisions to any forward-looking statements, and the forward-looking statements are only accurate as of the time of this writing.