

Entrepreneurial Financing



Foundations of New Venture Valuation

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Lecture 7

ENT 632

Entrepreneurial Financing



- a) Identify the recent Perspectives On The Valuation Of New Ventures.
- b) Mention the Valuation methods. Identifying the pros and cons of each. Which one Is more convenient to New Ventures?
- c) Explaining the Entrepreneur's Opportunity Cost Of Capital.

- How do VCs and other investors select the projects in which they invest? and
- How do they settle on the ownership stakes, terms, and conditions they require in exchange for investing?
There are no simple answers to these questions.
- **No venture will be funded unless an investor sees the merits of the concept and regards the entrepreneur as capable of implementing it or of working with the investor to build a capable team.**
- In addition, **there are issues of fit and timing:**
 - Can the **investor** contribute value to the project?
 - Does the **investor** have the financial and organizational capacity to take on another project?
- The answers to these questions depend on the particular expertise of the investor and on whether, at the time, the investor is looking for new projects.
- In this chapter, we introduce the **foundations of valuation** and present the most widely used valuation methodologies, identifying the pros and cons of each.
- **An important lesson is that if the assumptions are all consistent, then, in a perfect world, every valuation method will produce the same estimate of value.**
- Of course, **in reality they do not**. The data and assumptions in each valuation effort are estimates of the “true” underlying values.
- **Differences in estimated value across methods therefore reflect the effects of estimation errors.**
- The art of valuation is in deciding how to weight the information from each approach and use it to reach a conclusion about value.

Discount rate:

- The rate used to measure the present value of future cash flows as in the process of calculating discounted cash flow.
- **The discount rate** is supposed to reflect the expected rate of return for investing in an enterprise or activity.
- The discount rate is typically estimated by measuring the opportunity cost of cash flows currently abandoned versus future cash flows.

1. Perspectives On The Valuation Of New Ventures

- **The value of any investment** depends on its ability to generate future cash flows, as well as on **investor assessments of and tolerance for the riskiness** of those cash flows.
- Two aspects of valuation make new venture investment decisions particularly difficult:
 - **First**, the future cash flows are volatile and difficult to forecast.
 - **Second**, discount rates appropriate for new venture investments can be challenging to estimate.
- In spite of the near impossibility of precision, earnings or cash flow forecasts appear in most business plans, and forecasts are made and studied by VCs and other investors who are shopping for deals.
- In addition, VCs and other investors address the problem of determining the appropriate discount rate routinely.
- In an area as competitive and complex as investing in new ventures, the importance of good decision making about the terms for investing cannot be overemphasized.
- One indicator of the potential for good decision making to add value is the variation in investment performance of VC funds.
- Several sources compile information on the returns to investors in VC funds.

- **Low rates of return for some VC funds can result from numerous factors:**
 - Unfortunate timing, bad luck, lack of skill or access to deal flow, and
 - Unforeseeable negative events.
- However, two important reasons for low rates of return are **valuation mistakes** and **deal-structuring mistakes**.
- **Both of these can be avoided, or at least minimized, by using decision-making methods that give the investor a competitive advantage over its rivals in both project selection and deal structuring.**
- The arrival of professional investment managers to VC investing **has changed the market in fundamental ways.**
- Most important for our purpose is the changing way in which investment opportunities are valued by investors.
- In time, the changes will affect the ways in which entrepreneurs evaluate projects.
- Because the market is changing, some of the approaches and rule-of-thumb heuristics that have been used historically for investing in new ventures no longer can be relied on to identify projects that are likely to yield acceptable rates of return.

2. Myths about new Venture Valuation

Past practices have generated four myths about new venture investing.

Myth 1: beauty is in the eye of the beholder

- Three decades ago, Gordon Baty (1990) wrote, “**Pricing** a new company’s stock is much like pricing any other glamour item (such as perfume, paintings, rare coins) where appeal **is based on emotional**, as well as analytical considerations.”
- While it is reasonable to expect that the entrepreneur may care about qualitative factors, it would not be a good idea for a VC fund manager to propose to prospective investors that financial return be traded off against other factors. **Professional investors understand that the fundamental trade-off between cash flow and risk must drive valuation**. Here, we present theoretically **sound valuation tools** while at the same time recognizing the implementation challenges.

Myth 2: the Future is anybody's guess

- This is a more reasonable-sounding version of Myth 1.
- The claim is that even though cash flow is what matters, future cash flows of new ventures are so uncertain that forecasting them is of little value.
- Although new venture financial forecasts are subject to great uncertainty, such uncertainty—rather than making the forecast worthless—makes forecasting critical.
- In particular, **it is important to try to understand the extent, nature, and implications of the uncertainty.**
- It is true that a single-scenario forecast for a new venture is unlikely to be of much value.
- **Scenario analysis and simulation are, however, of considerable practical value for understanding and dealing with the risks, establishing strategy, assessing cash needs, and valuing the venture.**

Myth 3: investors demand Very high rates of return to compensate for risk

- New ventures are high-risk investments that tie up the investor's capital for several years with no easy means of exit.
- This has led to a broadly held perception that required rates of return for VC investing must be very high.
- On this subject Michael Roberts and Howard Stevenson write, "In order to compensate for the high risk of their investments, give their own investors a handsome return, and make a profit for themselves, venture firms seek a high rate of return. Target returns of 50% or 60% are not uncommon."
- As summarized in the following table, Jeffrey Timmons and Stephen Spinelli (2007, p. 449) provide a more comprehensive summary that echoes the same point:

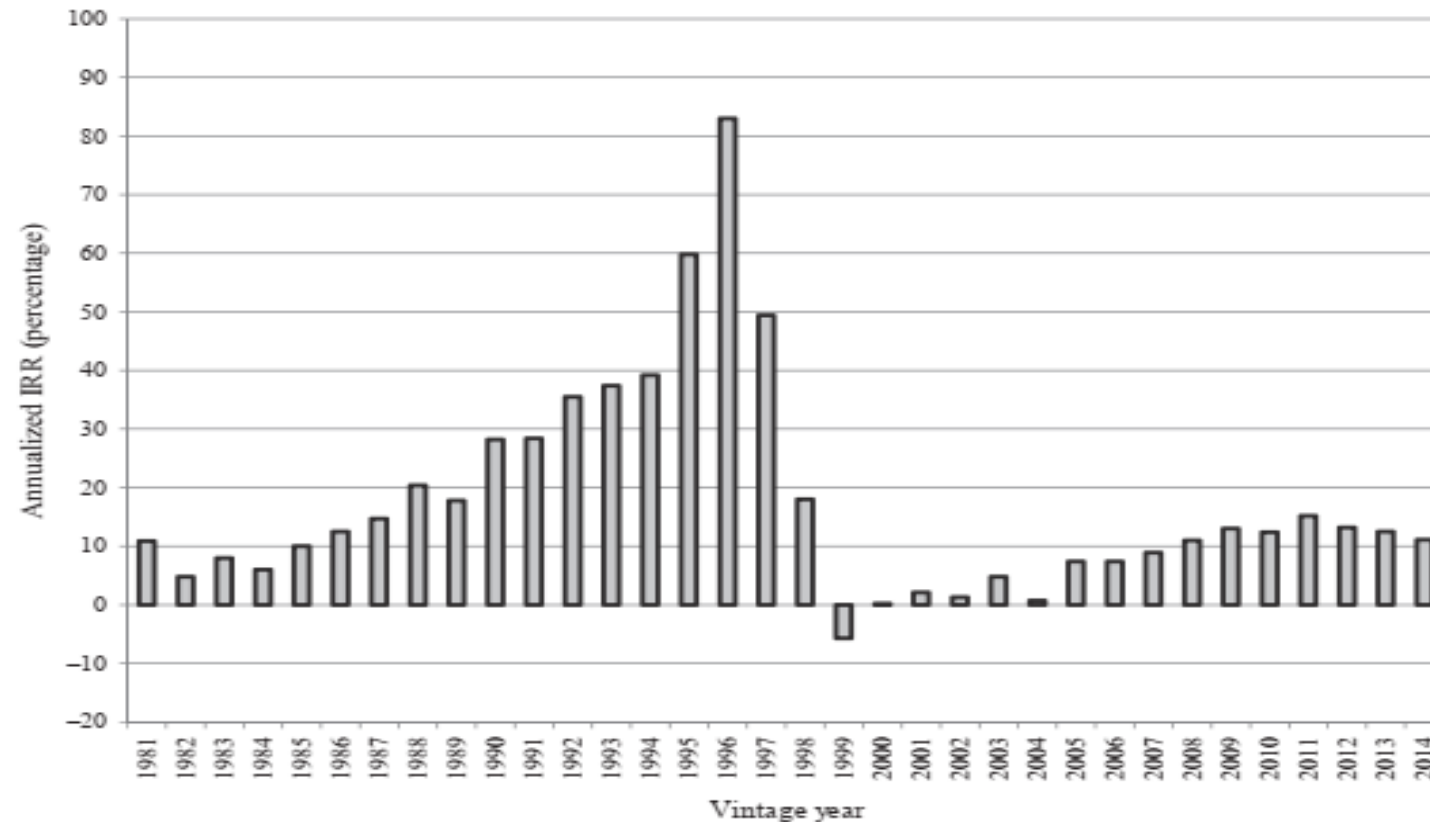
Stage	Annual ROR (%)	Total expected holding period (years)
Seed and start-up	50–100% or more	More than 10
First stage	40–60%	5–10
Second stage	30–40%	4–7
Expansion	20–30%	3–5
Bridge and mezzanine	20–30%	1–3
LBO	30–50%	3–5
Turnaround	50%+	3–5

- Scholars and others who remark on the high rates of return base their statements on historical practice or statements of “sought for” returns cited in PPMs, which generally are indicating the rates of return VC investors apply when discounting the entrepreneur’s projected cash flows. Approaching the question in this way, they find that the rates are typically quite high.
- ***For example***, Gompers, Gornall, Kaplan, and Strebulaev (2016) report, **based on a survey of a large sample of VCs, that the median “required” IRR for investment selection was 30%** and the “required” net multiple (cash-on-cash return) was 5.5 times. They also report that in marketing to potential investors VCs indicate seeking investments that can offer IRRs of 24% and net multiples of 3.5 times.
- These high returns, however, are not supported by historical evidence; an examination of the actual average realized returns for investing in new ventures tells a very different story. In addition to the information in Figure 10.1, numerous studies by academics and industry participants over more than four decades report average annual rates of return to investors in VC funds in the mid- to high teens.
- For the recent 20-year period, ending with the 2013 vintage year, the average annual return from a sample of U.S. VC funds was 17.3%. Figure 10.2 shows estimates of VC IRRs since 1981 by vintage year: the series exhibits very high volatility, including vintage years with very high returns and others with negative or near-zero returns.

FIGURE 10.2
VC returns to limited partners by vintage year

SOURCES: Thomson Reuters, Venture Economics, VentureXpert database, extracted August 2009; PitchBook data are from the PitchBook 2017 PE VC Fund Performance Report and Preqin

Data through 2006 are pooled average VC returns by vintage year compiled by Thomson Reuters and measured through 2009. Data from 2007 on are VC fund medians reported by PitchBook/NVCA and measured through 2017.



- How can the common practice of using very high discount rates to value projects be reconciled with the evidence that over many years the average realized return has been much lower? Do investors suffer from chronic unfounded optimism, so that actual returns have been disappointingly low? Or is there another interpretation of the evidence, one that does not rely on biased decision making?
- Surely, **if rates of return in the neighborhood of 30% could reasonably be expected, capital would flood the new venture market, driving the returns to levels that are more consistent with those for other forms of investment.**
- True required rates of return are much closer to the range documented in the empirical studies than to the very high rates that are sometimes sought by investors when they evaluate individual projects.
- The point for now is that the contradiction is more apparent than real.

Myth 4: the investor determines the Value of the Venture

- A common contention is that it is pointless for the entrepreneur to undertake a valuation.
- The argument is that investors do not accept the entrepreneur's valuation anyway, so the entrepreneur's efforts are better spent in other ways.
- **The problem** with this view is that it fails to recognize the pivotal role that valuation plays in reaching agreement between the entrepreneur and the investor, as well as the role it can play in helping the entrepreneur decide whether to undertake the venture.
- VC investors report in the Gompers et al. (2016) survey that less than 2% of the companies they consider for investment result in completed funding rounds and that many of their negotiations fail because of concerns about the management team, which can arise partly from unrealistic perceptions of value.
- In an interview, Sonja Hoel, a managing director at Menlo Ventures, cited valuation issues as an important factor. We almost always get it right if we turned down a deal because there wasn't a market.
- Where we don't always get it right is valuation. If we turned it down because of valuation, we had a 10% error rate. Of all the decisions we made because of valuation, 90% were good but 10% were bad.

Myth 4: the investor determines the Value of the Venture (Cont.)

- Good working knowledge of valuation can help the entrepreneur avoid a breakdown of negotiations. It is true that investors commonly prepare valuations based on their own research and assumptions.
- However, there is more to new venture financing negotiations than a simple exchange of cash for a percentage of the equity.
- In the context of a financing negotiation, **valuation is important to the entrepreneur for at least three reasons:**
- ***First***, the entrepreneur can better understand how the venture is likely to be valued by prospective investors.
- ***Second***, the entrepreneur can better understand what the venture should be worth to him and how that differs from its value to the investor.
- ***Third***, the entrepreneur needs to understand how alternative deal structures affect overall value and the values of the financial claims of investors and the entrepreneur.
- Even for very early-stage ventures, where “unpriced” rounds are common, it would be difficult to reach agreement on deal terms without a sense of the value of the opportunity.
- The entrepreneur might expect that competition among prospective investors can eliminate the need to value complex financial claims. This expectation is incorrect.
- Even if several investors are vying to participate in a venture, they may have varying views of the venture’s strategy and will probably seek different structures of ownership claims and financing commitments.
- Without studying the valuation consequences of different proposals, choosing the best alternative can be problematic for the entrepreneur.
- **A solid understanding of basic valuation techniques can ensure that entrepreneurs better understand how investors perceive the opportunity and help to reach a mutually beneficial agreement.**

3. An Overview Of Valuation Methods

- For an investor who cares only about financial return, **the value of any investment is the PV of its future cash flows.**
- Although a variety of methods exist for estimating value, ranging from explicit discounting of future cash flows to valuation based on simple multiples to valuation based on comparable firms, they all are attempting to measure, directly or indirectly, the PV of the right to receive future cash flows.
- As discussed in Chapter 1, **valuation is guided by two fundamental principles:**
 - 1. that **a dollar today is worth more than a dollar received in the future**, and
 - 2. that **a safe dollar is worth more than a risky one**, that is, a safe dollar is more valuable than a gamble with an expected payoff of one dollar.
- Thus, **the PV of any investment depends on the timing and riskiness of expected future cash flows.**

3. An Overview Of Valuation Methods (cont.)

- *In theory*, if a person could correctly identify expected cash flows, risk, and cost of capital, the result of a discounted cash flow analysis would be the “true” PV.
- *In practice*, however, there is considerable judgment involved in valuation. Because we must rely on estimates, we can be sure our calculations yield only approximations of true PV.
- Rather than despair, we should recognize that imperfect PV estimates provide opportunity.
- There are potentially large rewards for doing a better job of estimating PV than do your rivals.
- **Other things being equal, the entrepreneur or investor who consistently does a good job of estimating value will outperform one who is right on average but makes large over- and underestimation errors.**
- There are many theoretically sound and empirically validated valuation tools for analyzing new ventures.

3. An Overview Of Valuation Methods (*Cont.*)

- In this chapter, we introduce the following methods and highlight their strengths and weaknesses:

1. Discounted cash flow (DCF) methods

- a. The risk-adjusted discount rate (RADR) approach
- b. The certainty equivalent (CEQ) approach

2. Relative value (RV) method

3. The Venture Capital (VC) Method

4. The First Chicago Method

- These methods vary in their complexity and the directness of their connection to underlying economic theory, but all are used in practice and therefore are important to entrepreneurs and investors.

The Discounted Cash Flow (DCF) Methods

- We consider two approaches for estimating PV by DCF:
 - The first is the **RADR approach** and
 - the second the **CEQ approach**.
- The difference between them lies in how the adjustment for risk is incorporated into the calculation.
- If the approaches are applied in a consistent manner and the **underlying assumptions are consistent**, they will yield **identical estimates of value**.
- However, the information needed to implement the two approaches differs.
- Consequently, availability and quality of information are important determinants of which to use.

The Discounted Cash Flow (DCF) Methods (cont.)

- The RADR approach is the more widely known and used DCF approach.
- In risk-adjusted discount rate (RADR), an expected future cash flow is converted to PV by applying a discount rate that reflects both the time value of money and the riskiness of the future cash flow.
- This rate is known as the “risk-adjusted discount rate” because the effect of risk on value is built into the discount rate.
- The RADR approach is used most commonly in corporate finance because it is convenient and because the information requirements are easily satisfied by using data on comparable public firms.
- With the certainty equivalent (CEQ) approach, instead of adjusting the discount rate, the risk adjustment is made directly to cash flow.
- This adjustment yields a risk-adjusted (or certainty equivalent) cash flow that is converted to PV by discounting at the risk-free rate.
- It turns out that for new ventures, it can be easier to estimate the CEQ cash flow than the RADR.

Notice:

- As noted earlier, we consider two approaches to DCF valuation, the RADR approach and the CEQ approach.
-
- **The main difference between them is in the way we adjust for risk.**
- **Most introductory finance texts cover only RADR or only briefly describe CEQ.**
- **Because of its different information requirements, however, the CEQ method can be better suited than RADR for new venture valuation.**

The Relative Value (RV) Method

- Relative valuation uses market data on other companies or other transactions as bases for inferring the value of the subject venture.
- This method is sometimes referred to as “**comparables**” or “**multiples valuation.**”
- It is widely used in practice, especially for established private companies, and can provide a quick and easy **ballpark estimate of value.** The underlying logic is arbitrage.
- If two different companies are expected to produce identical future cash flows and are subject to identical risks, they should have the same value.
- If they did not, **then investors should want to sell the higher-valued one and buy the lower-valued one.**
- By inference, if firms have similar characteristics, the arbitrage reasoning should provide a good approximation.

The Relative Value (RV) Method (*cont.*)

- **Relative valuation** is thus an effort to finesse questions of discount rates and explicit cash flow projections.
- **If RV and DCF could be correctly and perfectly applied to a given venture, then they should yield identical values.**
- Suppose, *for example*, that we find a perfect comparable for a venture we want to value and that the comparable has been the subject of a recent transaction that implied a specific value.
- Under RV, we could simply say that the values are the same; under DCF, in contrast, we could use the expected future cash flows and implied value of the comparable to infer the discount rate that we should use to value the cash flows of the subject venture.
- We would get the same answer either way.

The Relative Value (RV) Method (*cont.*)

- *In practice, when RV and DCF yield different estimates of value, there is something inconsistent about the assumptions.*
- *Either the assumptions need to be revised or judgment must be used to assess the significance to place on each estimate.*
- In RV, market prices or prices from public or private transactions are collected along with information on observable characteristics of the comparable firms.
- This information may include accounting ratios and operating data that can be used to estimate the value of a private firm or new venture.
- **While the logic behind RV is straightforward, there are many challenges to valid implementation.**
- *Appropriate comparables for a new venture (with transactions at the same stage of development) can be difficult or impossible to find or to verify, and common metrics such as P/E ratios are not useful for a start-up that has not reached profitability.*
- Because some multiples are based on accounting data, the usual caveats about quality of earnings and adjustments to ensure comparability apply.
- More generally, *while the idea of valuation based on comparisons to other firms sounds **not** simple.*
- *There are many dimensions of comparability, including industry, business model, stage, size, and accounting ratios.*
- Ideally, a comparable firm has expected cash flows and risk that are similar to those of the new venture.

The Relative Value (RV) Method (*cont.*)

- Certainly, **no public company can be a direct comparable for an early-stage venture.**
- Moreover, there are **no** readily accessible databases of transactions related to **early-stage private companies** that have sufficient data to be useful in a valuation.
- Use of an **RV** approach is more common and more defensible for a company **that is being valued at the time of an assumed harvesting event, such as an IPO or acquisition.**
- At that stage, information on comparable firms and transactions is likely to be more plentiful and the necessary analogies are easier to make and defend.
- **In fact, RV is often the approach that is used in DCF methods to estimate the harvest-date cash flow.**
- That said, even for a mature private company there are likely to be no truly comparable public companies.
- Companies that are similar in some key respects but not identical to the subject company are likely to yield a wide range of value estimates.
- Deciding how to select the companies and how to weight the evidence are part of the art of valuation.

The Venture Capital (VC) Method

- The VC Method combines elements of DCF and RV and has been popular in the **private equity arena**.
- It is computationally straightforward and parallels the way **some VCs have traditionally approached their investments.**
- The method starts with an estimate of future value conditional on success— possibly the projections in the entrepreneur's business plan, which typically seek to demonstrate the potential success of the venture.
- **Success scenario** projections incorporate an assumed timetable for **exit**, typically three to five years, and a conjecture as to the form of exit and resulting future value.
- The estimate of exit value conditional on success is sometimes developed using RV multiples to a projected performance measure such as net income or EBIT.

The Venture Capital (VC) Method (Cont.)

- In spite of its widespread use and intuitive appeal, the VC Method has theoretical and practical shortcomings.
- Most important, the hurdle rate selection implicitly combines so many conditions that are difficult to specify so that there is no reliable way to determine the rate that should be used.
- Because only a success scenario is used, the assumed timing of the harvest cash flow can impart systematic bias to value estimates.
- Because of these, we regard **the VC Method as more of a device for negotiating with the entrepreneur than a reliable valuation method.**

The First Chicago Method

- The First Chicago Method is also used widely by VC practitioners and represents an improvement on the VC Method.
- The **goals of the First Chicago Method** are to provide a simple way of performing DCF valuation and to mitigate the valuation biases of the VC Method.
- Rather than limiting the analysis to a success scenario, the First Chicago Method uses probability-weighted scenarios to come up with a more reliable estimate of expected (in the statistical sense) cash flows, rather than just the optimistic cash flows used in the VC Method.
- These expected cash flows are then discounted using a more realistic cost of capital, rather than the high hurdle rates used in the VC Method.
- If the scenario probabilities are correctly weighted, the appropriate discount rate is identical to the one that would be used in DCF valuation by the RADR approach.

The First Chicago Method

- A **benefit of the First Chicago Method** is that it requires the analyst to think about the range of possible outcomes for the venture and their probabilities.
- The **question of which valuation tool is best for a particular situation** does not have a clear answer. ??
- Like any quantitative methodology, the results of each approach depend on the availability and quality of the information it requires.
- There is a benefit to using as many of the techniques as the data will allow.
- Doing so will inevitably produce a range of value estimates.
- The final step is to compare the results, seeking to understand the reasons for material differences.
- On reflection, you may conclude that in a given instance, one approach is more reliable than are the others.
- More likely, each provides some useful information, and **your task is to decide how best to weight the different estimates.**

4. The Entrepreneur's Opportunity Cost Of Capital

- A unique challenge to new venture contracting is that the entrepreneur necessarily invests a large fraction of his financial wealth and human capital in the venture.
- The resulting under diversification **implies that the entrepreneur faces a different risk-return tradeoff than does a well-diversified investor such as an LP in a VC fund.**
- The entrepreneur's decision to pursue a new venture is among the most difficult to make correctly.
- Yet research and books on entrepreneurial finance take the entrepreneur's investment decision as a forgone conclusion.
- **A common perception is that the entrepreneur's investment problem is less a quantitative decision than a qualitative one, having to do with wanting to be one's own boss, one's lifestyle preferences, and one's tolerance for risk. This focus is too narrow.**
- The entrepreneur's investment decision problem is fundamentally different from the investor's.
- Even though the underlying financial economic theory is the same, because of necessary under diversification, the opportunity cost of capital that is appropriate for the entrepreneur is different from that of the investor.
- This is true even if the parties hold identical financial claims.

10.10 The Entrepreneur's Opportunity Cost Of Capital

- The entrepreneur should take a separate look at value for **three** compelling reasons:
 1. Under diversification causes differences in required rates of return.
 - Because an entrepreneur is necessarily sacrificing some ability to diversify, the entrepreneur's opportunity cost of capital is higher than that of investors.
 2. Ownership claims of investors and entrepreneurs usually are not identical.
 - As we have seen, investors often receive “sweeteners” such as options and preferences that make the deal more attractive.
 - Sweeteners raise the value of an investor's ownership claims and therefore reduce the value of the entrepreneur's claim.
 3. The parties may have different beliefs about expected performance and risk.
 - The entrepreneur and the investor are unlikely to agree about the risk and expected return of the venture.
 - **Differences in expectations** about such things as development timing, achievable sales, and profitability make contracting more difficult.
 - Building on financial economic theory, **a valuation framework should address entrepreneur's under diversified risk.**
 - This framework can be applied in the context of differences in expectations and financial claims that differ in priority.

Summary

- Valuation is central for entrepreneurs and investors when they are making decisions about business planning, capital raising, and deal structuring.

In the last three decades, private equity investing has become more competitive, increasing the role and importance of theoretically sound and empirically supported valuation tools.

The valuation is a key contributor to a successful negotiation between the entrepreneur and investors.

- We describe several valuation methodologies that fall into two basic categories:
- discounted cash flow and relative value.
- **Discounted cash flow approaches** start with the premise that the value is simply the PV of all future cash flows. This is a theoretically sound approach, but DCF can also be challenging to implement. To use DCF, we need estimates of future cash flows and the corresponding discount rates.
- We stress the importance of matching the financial claim with the appropriate cash flow measure and discount rate and also introduce the concept of continuing value. To estimate discount rates, the notion of non-diversifiable or market risk is highlighted. Because the investors who participate in VC investing will be those best able to diversify and hold illiquid investments, we are able to rely on CAPM-based measures for calculating the appropriate discount rates.
- Continuing value represents a shortcut to estimating the value of the venture's long-term cash flows while avoiding the need for extensive, explicit cash flow forecasts.
- We review the RADR approach of DCF valuation and introduce the CEQ approach as a way to overcome the inherent challenges of using RADR to value new ventures.

Summary

- **The relative valuation method** uses the values of comparable firms, relative to operating or financial multiples, to provide a basis for estimating value. The challenge in using RV is in finding comparables that are truly representative of the new venture at the point when the venture is being valued.
- **The Venture Capital Method** is simple and intuitively appealing but has theoretical shortcomings that raise challenges to validity and call for caution in its implementation critical. Because the VC Method assumes a successful outcome, the corresponding annual discount rate is typically very high (30–80%) to compensate for the cash flow bias.
- **The First Chicago Method** was developed to address some of the shortcomings of the VC Method. It is a scenario-based valuation methodology, which means it incorporates a range of possible outcomes and therefore uses a more reasonable, lower discount rate.
- The First Chicago and RADR approaches yield similar value estimates when the scenarios in the First Chicago approach are weighted to yield expected cash flows.



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