



Valuing Pre-revenue Companies

Entrepreneurs and investors must both understand the critical aspects of valuation for pre-revenue and startup entrepreneurial ventures. By aligning expectations, such understanding fosters positive, productive relationships between funders and founders. In addition, investors and entrepreneurs benefit separately when they know the answers to essential questions. What are the most important factors angel investors should consider in determining a company's value? How can entrepreneurs better present their companies to attract early-stage investors and build effective relationships? "Investment Valuations of Seed- (Startup) and Early-Stage Ventures" by Luis Villalobos, founder of Tech Coast Angels, defines perspectives from which investors and entrepreneurs view valuation and provides insights that can reduce the natural contentiousness of negotiating valuation.

Content

• Investment Valuations of Seed- and Early-Stage Ventures	3
• Startup Pre-money Valuation: The Keystone to Return on Investment	9
• Is Valuation a Key Issue in Funding Startups?	11
• Fundability and Valuation of Startups: An Angel's Perspective	14
• Valuation Worksheet	16
• Valuation of Pre-revenue Companies: The Venture Capital Method	18
• Valuation Divergence	21
• Valuation Estimator	23

Editor's Note:

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Investment Valuations of Seed- and Early-Stage Ventures

Luis Villalobos

This exceptional article offers insightful explanation and key details of how angel investors determine valuations, why entrepreneurs and investors often have different perspectives for angel returns, and what steps angels and entrepreneurs can take to quickly find common ground on this critical topic.

Article

Some early-stage investment negotiations resemble a game of Texas Hold-'em poker. Each player withholds information and tries to convince opponents that his hand is better than it actually is. But valuation negotiations are not card games. Unlike poker, the objective of investment negotiations ought to be for investors and entrepreneurs to share information as openly and completely as possible and to work together toward a common goal of building successful companies.

Why focus on valuation? At the time of investment, valuation is the core determinant of return for investors. In other words, the return to investors is based on the increase in the valuation of shares they receive in exchange for their capital. Understanding valuation is critical to successful investing. Unfortunately, valuation is the most misunderstood part of the investment process and often leads to contentious negotiations that get the entrepreneur-investor relationship off on the wrong foot.

What is the problem? Most entrepreneurs and investors have oblique points of view—in other words, their views don't intersect. In fact, the two sides don't even speak the same investment language. More fundamentally, neither understands what I call "divergence" of valuations. Understanding divergence can reduce contentiousness and ensure that negotiations build an effective working relationship between investors and entrepreneurs.

What is divergence? Divergence is the difference between the growth rate of the company's valuation and the valuation of the shares investors receive due to dilution by subsequent investors and other factors. Even in successful ventures, divergence, in fact, tends to be between 3x and 5x.

A simple example may help make the point: An investor funds at a \$4-million post-money valuation and receives shares valued at \$2 each. The company is sold in five years for \$60 million, which is a 15x increase in company valuation. Due to dilution, however, the value of the investor's shares will almost certainly not have increased 15x to \$30 per share. They might instead have increased only 3x to \$6 per share. In this example, the increased valuation of 15x divided by the increase in the investor's share value of 3x demonstrates a 5x divergence. (For a detailed treatment I wrote, see "Valuation Divergence," starting on page 21.)

What do angels target for returns? Some angels target 5x to 10x ROI (cash-on-cash return on their investment) in four to eight years, which yields an internal rate of return of between 25 and 75 percent. (In the accompanying table, the target numbers assume that divergence of between 3x and 5x times is factored in.) Other angels simply target 30x ROI without divergence.

The two approaches are effectively equivalent: If you assume 4x divergence (the midpoint between the expected range of 3x to 5x) and multiply that by a return of 7.5x (midway between the 5x and 10x range), then you get 30x, which factors in divergence. These rules of thumb are not sacrosanct; they reflect two common approaches.

Sweet Spot 5-10x in 4-8 Years						
ROI on Invested Capital						
	5x	6x	7x	8x	9x	10x
4	50%	57%	64%	68%	73%	78%
5	38%	43%	48%	52%	55%	58%
6	31%	35%	38%	41%	44%	47%
7	26%	29%	32%	35%	37%	39%
8	22%	25%	28%	30%	32%	33%

IRR between 25-75%

Investment Valuations of Seed- and Early-Stage Ventures (continued)

Valuation has Many Aspects

Investors often talk about the pre-money or post-money valuation of a company at the time they invest. If you get a specified percent of the common stock for your investment, and nothing else, this calculation can be straightforward. But angels have learned from VCs to negotiate for preferred stock instead of common as the type of security for their investments as well as for other financing terms, such as board seats, controls, warrants, and dividends. Under these conditions, valuation at time of investment becomes complex and not easily quantified. Although explicit valuation can be determined, and implicit valuation partially determined by accounting for some financing terms (warrants or dividends, for instance), other financing terms such as board seats or voting controls are difficult, if not impossible, to quantify fairly. For example, on a \$3 million pre-money valuation, what would the imputed difference in valuation be for getting one board seat instead of two—\$25,000, \$100,000, \$500,000?

Explicit Valuation

Computing the explicit valuation, whether pre-money or post-money, is simple but requires clear understanding of a few concepts. (For a more complete discussion, see “Valuation of Pre-revenue Companies: The Venture Capital Method” by Bill Payne starting on page 18.

- **Full dilution:** Full dilution counts not only shares that have been issued but also all shares that would be issued if all options and warrants were exercised and other promises or contingent agreements to issue shares were given effect.
- **Investors’ (initial) percent ownership:** The percentage of a company’s full dilution shares that the investors own, at the time of investment, including the shares issued to the investors.
- **Money:** The amount of capital being invested in the round.
- **Post-money valuation:** Post-money valuation is computed by dividing the money by the investors’ percentage of ownership.
- **Pre-money valuation:** Pre-money valuation is computed by subtracting the money from the post-money.

If the investors receive no other consideration (warrants or dividends, for example) for their investment, then the explicit valuation is all you need to consider.

Implicit Valuation

However, when investors receive additional consideration for making their investment, the implicit valuation may be different from the explicit valuation. How to quantify an implicit valuation is beyond the scope of this article, but some typical factors are sketched out below:

Warrants: The investors may get warrants (or non-qualified options) to purchase additional shares. The factors to consider:

- **Warrant coverage:** How many additional shares the investors can purchase relative to the number of shares they purchase outright—10 percent, 30 percent, or even 100 percent.
- **Strike price:** Relative to the price of the underlying security the investors get.
- **Stock choice:** Whether the warrants are to purchase common stock or preferred stock.
- **Warrant life in years:** This varies but can be, for example, one, five, or ten years.
- **Kicker versus substantive change:** Warrants can provide a small “kicker” (5 percent coverage with a one-year warrant, for example) or can materially affect the valuation (100 percent coverage with ten-year warrants).
- **Effect on the valuation:** You need to consider the time cost of money since warrants need not be exercised (converted to shares) until a much later date.

Investment Valuations of Seed- and Early-Stage Ventures

(continued)

Liquidation preferences: Investors may negotiate a liquidation preference. At exit and after secured debt, trade creditors, and other company obligations are paid, a liquidation preference determines the relative distribution between the preferred shareholders (the investors) and the common shareholders. There are various kinds of liquidation preferences:

- **Non-participating simple preference (1x):** At exit investors must choose between a return of capital (sometimes partial) and participation with the common shareholders in proportion to their ownership. (See example below.) If the investors choose complete return of capital, then any remaining proceeds are divided among common shareholders.
- **Multiple preference:** Works the same as simple preference except that investors get a multiple of their investment before common shareholders receive anything.
- **Participating 1x liquidation preference:** In this case, the investors first receive their capital (1x preference) and then their shares convert to common. The concept is to share the gains between preferred and common by first returning capital to investors and then distributing the gains from the sale of the company in proportion to ownership.
- **High multiple (5x or 7x or more) preferences:** These are also used but much less frequently. Sometimes they reflect creative deal structures (preventing earlier investors from being washed out while providing a reasonable return to new investors). At other times they are abusive and might reflect the sharks that surface in a very bad market for raising capital (as happened after the bubble burst in 2000).
- **Example:** Angels invest \$1 million for 25 percent of a company without a liquidation preference, and the company is later sold for \$2 million. In this example, the investors would get only \$500,000, losing half of their capital, and the entrepreneurs would pocket \$1.5 million. If the investors negotiate a 1x simple preference, however, they would get \$1 million off the top, and the common shareholders would get the remaining \$1 million. Finally, if investors negotiate a 1x participating preference, they would get \$1 million off the top plus another \$250,000 (25 percent of the remaining \$1 million). The common shareholders would receive \$750,000.

Dividends: Few investors and even fewer entrepreneurs understand how dividends are used in early-stage financing transactions. Two types of dividends are frequently encountered; a third is possible but rarely used.

- **Protective dividend provision:** In this case, there is no intention of dividends actually being paid to investors. For obscure legal reasons, such a provision may be included, stating that these dividends are payable "when and if declared by the board." The presumption, however, is that the board will not declare such payments.
- **Dividends that accrue:** These dividends are not paid in cash, but are included in computing distribution to investors at exit as a way to enhance potential return to investors without affecting the "nominal" valuation. It is unusual, and can be abusive, to include dividends like these and include participating liquidation preferences. More typically, protective dividends are used.
- **Cash dividends:** Rarely contemplated in these types of financings because both investors and entrepreneurs want to conserve cash to fuel additional growth or to show a better bottom line.

Investment Valuations of Seed- and Early-Stage Ventures (continued)

Contingent Valuations

Performance milestones are sometimes included in the financing terms that if met lead to additional shares for investors or entrepreneurs. The range of effect on the valuation can be calculated by assuming the extremes: no milestones are met and all milestones are met. How to adjust the valuation within that range is more difficult. In my experience, such milestones can be counterproductive because they can lead to unintended consequences. Human beings tend to manage to the objectives they are given, even if they are no longer in the best interests of the venture or of the investors. Plus, the process can be sidetracked by protracted renegotiation of the milestones.

Non-Quantifiable Valuation Factors

Nearly any deal terms can affect the valuation. For example, if investors want two board seats, they are unlikely to agree to take only one board seat in exchange for a reduction in the valuation by one dollar. However, they might well agree if the valuation were cut in half. Some deal terms may be deal breakers for investors, but even those presumably can be taken as equivalent to a zero valuation (no deal). That being said, I don't know of any investors who put an explicit cash value on such deal terms as:

- Founder vesting: Next to valuation, founder vesting may well be the second most contentious issue in negotiating a financing, especially if the investors want the founders to be employees "at will." Stated more plainly that means the founders can then be terminated without cause and lose any unvested shares.
- Board seat(s)
- Anti-dilution provisions
- Protective provisions: Such provisions require the company to obtain approval of the investors as a group before taking certain actions, such as changing auditors, shareholder rights, the size of the board, or the nature of the business; creating new securities; amending the bylaws or certificate of incorporation; repurchasing company shares; agreeing to a merger or acquisition; increasing the employee stock option pool; selling the company's intellectual property; issuing options or shares to executives or directors, or incurring indebtedness above a threshold.
- Information rights
- Increase in the employee stock option pool
- Registration rights
- Preemptive rights
- Drag-along rights
- Redemption: This provision refers to repayment of investors' capital, typically after five years. It can provide future negotiation leverage but is rarely invoked successfully.

Investment Valuations of Seed- and Early-Stage Ventures (continued)

What if You Can't Agree on Valuation?

If entrepreneurs and investors get close on a deal except for an explicit valuation, several approaches are available for resolving the impasse.

Closing a valuation gap: One method is to adjust the implicit valuation using one or more factors. For example, say that entrepreneurs want a \$4 million pre-money valuation for a \$1 million investment but the angels don't want to go above \$3 million.

- Warrants: The angels can agree to the \$4 million pre-money but ask for additional (say 33 percent) long-term warrants to purchase shares at the same price.
- Liquidation preferences: Increase the liquidation preference—for example, from 1x non-participating, to 1x participating; or from 1x participating to 1x participating.
- Dividends: 8 percent dividends that accrue and are payable upon a liquidity event.
- Or a combination of the factors.

Kick the ball down the road: When a subsequent financing round is envisioned in the near-term, early-stage investors can defer the negotiation of valuation to the next round and perhaps to the VC firm that leads that round. Instead of agreeing on a valuation, the investors negotiate a discount to the next round or get warrant coverage beyond what next round investors would get. For example, if the next round closes within six months, the current investors get a 30 percent discount or 30 percent warrant coverage. If the next round takes longer to close, they receive higher discount or warrant coverage.

Deferred valuation collars: Deferred valuation approaches can include a "collar," which is a minimum and a maximum valuation that protects investors and entrepreneurs if the subsequent valuation is outside that collared range.

Without a collar on a high valuation, for example, investors could encounter the unusual venture that takes off like a rocket and that, by the subsequent round, results in a valuation so high that even a 50 percent discount from that valuation gives away the huge upside that's occurred. A downside collar protects entrepreneurs from their valuation being badly crippled when things go wrong, possibly through no fault of their own—a terrorist strike, for example.

Here's an example that illustrates both perspectives. Say that investors and entrepreneurs cannot agree on a valuation. Investors want \$3-million pre-money and entrepreneurs \$5 million. To move forward, they agree on a 30 percent discount at the next round—without a collar. If the next round were done at \$50-million pre-money, the 30 percent discount (\$35 million pre-money) would still be 7x higher valuation than the entrepreneurs would have taken for the current round. Even though such rocket-ship starts are highly unusual, investors should not give up that potential by not including a collar.

To protect the entrepreneur's interests, the agreement might be a 30 percent discount to the next round with a collar of \$3 million to \$5 million or \$2 million to \$6 million.

Investment Valuations of Seed- and Early-Stage Ventures (continued)

Market Valuation

In the end, the practical determinant of valuation is the market. Always use market conditions as a starting point in financing negotiations. As another article in this collection shows, median pre-money valuation of venture capital seed-stage enterprises has varied over a narrow range between \$1.7 million and \$2.5 million since 2002. (See "Is Valuation a Key Issue in Funding Startups?" by George Lipper starting on page 11. The article references venture capital fund valuations, which tend to be higher than angel valuations.)

Concluding Suggestions

In many respects, arriving at a valuation is more art than science. But there are some general points to be made:

- Investors should understand and be able to explain divergence to entrepreneurs. Once entrepreneurs realize that their assumptions about investors' returns based on the company valuation at exit may be off by a factor of 3x to 5x, negotiations become easier. If neither side understands divergence, then negotiations can easily deteriorate and become contentious.
- In general, educate before you negotiate. In addition to divergence, be able to explain the rationale for a 1x participating liquidation preference, for example, or the implications of pre-money valuation.

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Startup Pre-money Valuation: The Keystone to Return on Investment

Luis Villalobos and William H. (Bill) Payne

Investing in seed and startup companies is extremely risky: Angel investors typically realize about 85 percent of their total portfolio returns from 15 percent of their portfolio companies. Consequently, angels look only for companies that can grow rapidly. Entrepreneurs who pursue less aggressive growth are unlikely to attract angel investors.

Article

For decades, experienced angel investors have intuitively used the following rules of thumb for investing in seed and startup companies:

- Home runs provide all the return on investment. In a typical angel investor's portfolio of ten investments in seed/startup companies, half the companies perish with no return to investors, and an additional three or four companies return some capital or provide a modest return on investment. Investors hope these three or four companies will at least return the capital for the entire portfolio—all ten investments. Ultimately, only one or two of ten investments will strike it big and bring virtually all of the return on investment to the portfolio.
- A large, diversified angel portfolio should provide an IRR of at least 25 percent per year. That's because an angel portfolio is high-risk investing. Rather than track IRR (internal rate of return), however, most angels look at ROI—return on investment or cash-on-cash return. Over five to eight years, angels expect an ROI of 3x to 5x for their portfolios, which is essentially what one would expect for a 25 percent IRR.
- Angels must invest only in high-growth companies. Again, because of the poor odds of success, angels look for companies that can scale—that is, companies that show promise of growing ten, twenty, or even one hundred fold in value over a typical five-to-eight-year investment. Companies without the opportunity to show such scalability need not apply!
- Reducing scale does not reduce risk. Investing in restaurants that offer 2:1 ROI is just as risky as investing in software companies that scale to a 10x or greater return.

Angel investors cherish their privacy, so there is little data available on the performance of their seed and startup portfolios. Recently, however, one of the authors (Luis Villalobos) assembled and analyzed the portfolios of four experienced angels who have collectively invested in 117 companies and harvested many of those investments. While not statistically significant, the investigation showed interesting results.

The bottom row summarizes the basic facts of this study. A total of 117 ventures received total investments of just under \$10 million and provided a total return for the portfolio of just over \$50 million. The average time to exit was four years (far lower right cell). Significantly, the cell just above the average shows that "home runs" took more than twice as long to mature—8.6 years—than the average for the complete portfolio.

As the first column shows, the data are grouped by ROI. For example, the first row contains data about the companies that failed and returned nothing to investors: Thirty-one ventures receiving \$2.3 million in total investment lost everything in an average of 2.6 years.

The second row of data shows twenty-six companies returned less than all of the invested capital to investors. The third row (ROI = 1) shows twenty-three companies, which have not had a subsequent pricing round, and are valued at the invested amount (ie ROI = 1x); the 2 years in Average Time to Exit is NOT really exit, but holding time. The fourth row shows twenty-one companies returned more than 1x and up to 10x to investors.

ROI Multiple	Ventures			Amount Invested		Total Value			Average Time to Exit
	Number	% of Total	Average Invested	Total	% of Total	Total	ROI Multiple	% of Total	
0	31	26	73,920	2,291,525	23	0	0	0	2.6
>0 to <1	26	22	146,651	3,812,914	38	1,878,426	0.5	4	3.6
1	23	20	29,192	671,422	7	671,422	1	1	2
>1 to 10	21	18	89,073	1,870,541	19	5,614,653	3	11	5
> 10x	16	14	80,633	1,290,132	13	42,927,748	33.3	84	8.6
All	117	100		9,936,534	100	51,092,249		100	4

Startup Pre-money Valuation: The Keystone to Return on Investment (continued)

Especially important are the following observations:

- The fifth row shows 84 percent of the total return from these portfolios came from just 14 percent of the investments. This number is similar but somewhat better than the rule of thumb that one in ten portfolio companies provides all the ROI.
- While the average time to exit was four years, the home runs took an average of 8.6 years to harvest. Lemons sour quickly but plums take longer to ripen.
- The average home run yielded 33.3x return to investors, as shown in the corresponding “Total Value, ROI” cell. This data support the assumption that angel must invest in companies that demonstrate high scalability of 10x, 20x, or even 100x.
- The total cash return from the companies showing less than 10x return on investment (see column seven: \$0 + \$1,878,426 + \$671,422 + \$5,614,653 = \$8,164,501) was less than the total invested (\$9,936,534 = total of fifth column). This data confirm the empirical assumption by angels that the best that can be expected from investments that are not home runs is that, in total, they will essentially return the capital for the entire portfolio.

Message for Entrepreneurs

Investing in seed and startup companies is very high risk: Perhaps 10 percent of portfolio companies will provide all the return.

Valuation Axiom #1: Angel Investors seek only scaleable investments—companies that can grow revenues to \$50 million or \$100 million or more within five to eight years.

Valuation Axiom #2: Building companies with revenues sufficient to create \$100 million in market value in five to eight years requires much more capital than is normally invested in seed/startup rounds and substantially more cash than can be generated from earnings. Consequently, the ownership of early investors will be diluted substantially as the company raises the capital necessary to fund growth. (See Luis Villalobos’ article, “Valuation Divergence” starting on page 21.)

Valuation Axiom #3: Seed and startup investors learned an important lesson during the Internet bubble: Placing a high pre-money valuation on seed and startup ventures limits upside and increases the likelihood of a down round as the company raises the capital necessary for growth.

Valuation Axiom #4: The first professional investment rounds in seed and startup companies should be made at a valuation of between \$1 million and \$3 million, depending on the quality of the management team and the size of the opportunity.

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Is Valuation a Key Issue in Funding Startups?

George Lipper

Valuation negotiations between entrepreneurs and investors are often contentious. Such valuations rarely stray from the \$1 million to \$3 million range for seed/startup companies that angels expect to grow to \$50 million to \$100 million over five to eight years. Angels are most concerned about the management team's ability to rapidly grow the company and about helping the entrepreneur achieve these growth objectives.

Article

Ron Conway, an iconic angel investor from Silicon Valley, was recently quoted as saying, "I will not talk to an entrepreneur about valuations for more than five minutes. If they want to talk more than five minutes, I probably do not want to invest."

Conway's logic is so simple and straightforward and built on so much commonsense it is difficult to dispute. Valuations for pre-seed startups, regardless of the ups and downs of the venture marketplace are as level and consistent as a Tiger Woods round of golf. Oh, sure, there's the exception, but if you're a rational entrepreneur or investor, you wouldn't want to bet on identifying it before investing.

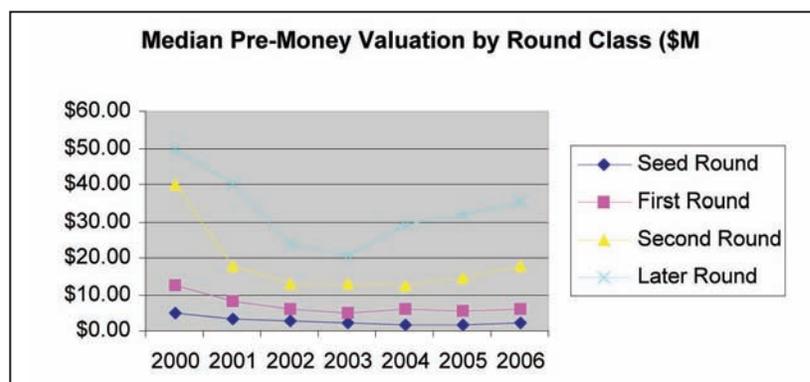
Much more important, as Conway's logic seems to run, is the capability of the management to grow the company to, say, \$50 million. An entrepreneur who spends time focusing on pre-seed valuation probably doesn't understand valuation, which probably means the entrepreneur does not have the vision and ability to put a company on the path to high growth.

The predictability of seed valuations is underscored by trend lines plotted by those who keep score, Dow Jones VentureOne, among them. Since the bubble burst, seed-stage investing by institutional venture capitalists has hovered around \$2 million, regardless of variations in other stages of investment.

Round	2000	2001	2002	2003	2004	2005	2006
Seed	\$5.00	\$3.18	\$2.50	\$2.00	\$1.70	\$1.80	\$2.40
First	\$12.20	\$8.00	\$6.00	\$4.90	\$5.80	\$5.50	\$6.00
Second	\$40.00	\$18.00	\$13.00	\$13.03	\$12.25	\$14.85	\$18.00
Later	\$89.50	\$40.00	\$24.00	\$20.40	\$29.00	\$32.00	\$35.40

Courtesy DowJones VentureOne

The consistency becomes even more apparent when plotted:



Is Valuation a Key Issue in Funding Startups?

(continued)

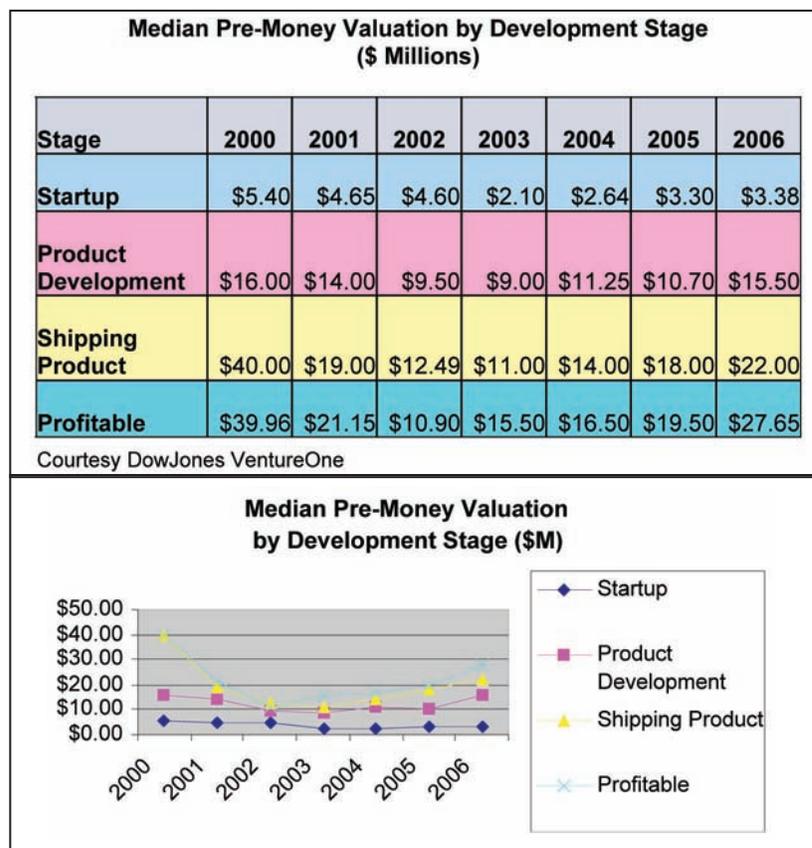
There you go: as straight and long as Tiger's drives. You're expected to hit the green from there, followed by an initial putt out (IPO).

It matters little, if at all, whether the investment is made by an institutional investor, an angel group, or an individual. "The task (for the entrepreneur) is to build a company that is worth \$50 million," Conway observed. "At that rate of growth, no one is likely to care much about a million or two."

For this article, we used the description of seed capital that Dow Jones VentureOne uses in its quarterly reports of venture financing: An initial round of venture capital financing used to start a company. Other criteria are that the company has fewer than ten employees and that the investment round, with some exceptions, is less than \$2 million. The definition itself is a significant element in the valuation data described above.

Nonetheless, when an alternative criterion is used—funding by stage of development instead of round of investment—the numbers line up as shown in the accompanying table.

Yet the trend line for startups differs very little from that of the seed round:



All this data appear to reinforce Conway's philosophy about valuations placed on seed or startup entrepreneurial

Is Valuation a Key Issue in Funding Startups?

(continued)

businesses. The exact amount matters very little to the entrepreneur or the investor as long as the valuation is in the \$2 million range and the entrepreneur has the management capability to grow the company.

For follow-on and later stage investing, the range of valuations is much wider and the number and complexity of valuation equations much greater, especially when considering the precipitous fall pictured from the end of the bubble in 2001.

In summary, then, based on available data, evaluations of small, high-growth opportunities ought to focus more on the quality of the management and less on the amount of the valuations.

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Fundability and Valuation of Startups: An Angel's Perspective

William H. (Bill) Payne

Numerous factors affect how angels value a company. Primary are the strength of the management team and the size of the opportunity, or a company's potential to scale. Accompanying this article is a valuation worksheet that entrepreneurs can use to better understand what investors look for and to identify factors that can justify higher pre-money valuations. Investors will find it useful to compare companies and determine whether valuation should be higher or lower.

Article

During a round of investment in seed- (startup) and early-stage companies¹, angel investors typically invest from \$25,000 to \$100,000 each. The round usually totals between \$250,000 and \$1 million, and the company valuations run from \$1 million to \$3 million. Collectively, the angels purchase from 20 to 40 percent of a company's equity and seek a return of 20-30x over five years. These anticipated returns are reasonable, considering the risk in such ventures and the impact of dilution by subsequent investors.

Since the Internet bubble burst, the pre-money valuations² of seed-stage companies by venture capitalists have averaged between \$1 million and \$3 million³. Angel investors tend to participate at earlier investment stages than venture capitalists, so pre-money valuations for angel deals nearly always fall into this admittedly wide range. What factors within this range impact the valuation of a specific company?

Factors Impacting the Valuation

The accompanying Valuation Worksheet on pages 16–17 provides entrepreneurs and investors with an empirical basis for deciding if a startup company should be valued near the top or bottom of the range. It's not designed to be used for definitive valuation calculations.

The Valuation Worksheet lists major factors and key issues to consider in judging the value of a seed/startup company. Note the following features:

- The major factors are listed roughly in order of importance.
- Each major factor has been assigned a weighted ranking. For example, the "Strength of the Management Team" is worth 30 percent while "Sales Channels" are worth 10 percent. Investors put greater emphasis on the management team and the size of the opportunity than they do other factors.
- Within each major factor, the impact of each issue has been assigned a valuation ranking from +++ (very positive) to - - - (very negative) to assist the investor decide the overall weighted ranking to be assigned to the valuation. Some factors, such as the size of the opportunity (scalability) and coachability of the entrepreneur, can be deal killers.

No two investors will value a company the same. With practice, however, investors can use this worksheet to compare companies and determine whether valuation should be near the high or low end of a reasonable range.

Entrepreneurs can use the worksheet to gain insights into what investors are looking for in a fundable seed-stage company and to identify factors that justify higher pre-money valuations. The worksheet is also a roadmap on how entrepreneurs can improve the fundability of their enterprises and increase the pre-money valuation.

Keep in mind that this worksheet is only a guide. In the end, valuation of pre-revenue startup companies is an art.

Fundability and Valuation of Startups: An Angel's Perspective (continued)

The Last Word

There is no universally accepted analytical methodology for assigning value to a pre-revenue, startup company. Nonetheless, investors and entrepreneurs negotiate the value of tens of thousands of such ventures annually. In general, the factors and issues described in the worksheet are used by investors to: 1) determine the range of valuations appropriate for individual companies; and 2) identify specific factors and issues that determine at which end of those ranges individual companies should be valued.

1 PricewaterhouseCoopers' MoneyTree™ provides the following definitions:

- Seed/Startup Stage: The initial stage. The company has a concept or product under development but is probably not fully operational. Usually in existence less than eighteen months.
- Early Stage: The company has a product or service in testing or pilot production. In some cases, the product may be commercially available. May or may not be generating revenues. Usually in business less than three years.

2 See the extended discussion of pre-money valuation in "Valuation of Pre-revenue Companies: The Venture Capital Method" by William H. (Bill) Payne starting on page 18.

3 "Is Valuation a Key Issue in Funding Startups?," by George Lipper, July 2007. This article starts on page 11.

For follow-on and later stage investing, the range of valuations is much wider and the number and complexity of valuation equations much greater, especially when considering the precipitous fall pictured from the end of the bubble in 2001.

In summary, then, based on available data, evaluations of small, high-growth opportunities ought to focus more on the quality of the management and less on the amount of the valuations.

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Valuation Worksheet

William H. (Bill) Payne

Numerous factors affect how angels value a company. Primary among them are the strength of the management team and the size of the opportunity, or a company's potential to scale. Entrepreneurs can use this valuation worksheet to better understand what investors look for and to identify factors that can justify higher pre-money valuations. Investors will find it useful to compare companies and determine whether valuation should be higher or lower.

Weighted Ranking	Factors and Issues Impacting Valuation of Pre-revenue, Start-up Companies	
0-30%	Strength of Management Team	
	Impact	What is founder's experience?
	+	Many years business experience
	++	Experience in this business sector
	+++	Experience as a CEO
	++	Experience as a COO, CTO, CFO
	+	Experience as a product manager
	-	Experience only as a salesperson of technologist
	--	Straight out of school
	Impact	Is the founder willing to step aside, if necessary, for a new CEO?
	deal killer	Unwilling
	-	Difficult to convince
	0	Neutral
	+	Willing
	++	Key part of the plan
	Impact	Is the founder coachable?
	0	Yes
	deal killer	No
	Impact	How complete is the management team?
	--	Very incomplete (none identified)
	-	Somewhat incomplete
	0	Good start
	+	Rather complete team
	++	A complete and experienced management team
0-25%	Size of the Opportunity	
	Impact	What size is the specific market for the company's product/service?
	deal killer	<\$50,000,000
	0	\$100,000,000
	++	>\$500,000,000
	Impact	What is the potential for revenues in five years?
	deal killer	<\$30,000,000
	0	\$50,000,000
	++	>\$100,000,000
0-15%	Competitive Landscape	
	Impact	What is the status of the IP (intellectual property)?
	0	Trade secrets only
	+	Core patents pending
	++	Core patents issued
	+++	Complete patent estate
	Impact	What is the strength of competitors in this marketplace?
	--	Very strong
	-	Strong
	0	Fragmented
	+	Weak
	++	Very weak
	Competitive Landscape and rest of table continued below.	

Valuation Worksheet
(continued)

Competitive Landscape (continued)		
	Impact	How large are the barriers to entry?
	--	Very low
	-	Low
	0	Modest
	+	High
	++	Very high
0-10%		Sales Channels
	Impact	What channels of sales are in place?
	--	Haven't even considered
	-	Many possibilities identified
	0	Narrowed to one or two channels
	+	Initial channels verified
	+++	Channels established
0-10%		Business Stage
	Impact	In what stage of business is the company?
	--	Only have a plan
	-	Writing code/in product development
	0	Product ready for customer evaluation
	++	Positive, verifiable customer acceptance by beta site
	+++	Customer lined up
0-10%		Funding Required
	Impact	What amount of funding is required?
	++	\$250,000 to \$750,000
	+	\$750,000 to \$1,500,000
	0	\$1,500,000 to \$20,000,000 (depends on availability of VC capital in region)

Valuation of Pre-revenue Companies: The Venture Capital Method

William H. (Bill) Payne

This informative piece explains a well-known method that venture capitalists use to determine “post-money valuation,” which is a company’s valuation at the time of investment. Perhaps more important, it provides valuable insights into why the returns expected by investors are often perceived as “too high” by entrepreneurs.

Article

In 1987, Professor William Sahlman of the Harvard Business School published a fifty-two page case study, “The Venture Capital Method,” HBS Case # 9-288-006. In its most simple iteration, the method provides the following formula for calculating the post-money valuation of seed/start-up companies:

$$\text{Post-Money Valuation (Valuation at Investment)} = \frac{\text{Terminal Value (Valuation at Exit) Year } n}{\text{ROI (Cash-on-Cash) Year } n}$$

The formula is based on the following assumptions and definitions:

Simple iteration: This approach assumes that no more shares in the company will be issued after this round of funding, so the percentage of ownership of the investors will remain constant from investment to harvest. For high-growth companies, this assumption is unrealistic, but it’s useful for illustrating the post-money valuation concept. In practice, such companies will likely require substantial additional cash to fund growth. Both debt (with warrants) and equity sources of cash will dilute founders and early investors alike. Building a management team requires providing option pools that often need to be refreshed. In the article “Seed- and Early-Stage Ventures” also available in the eVenturing Collection titled “Valuing Pre-revenue Companies,” Luis Villalobos estimates that this dilution can reduce the return on investment by 3x to 5x.

Post-money valuation: The valuation of the company immediately after a round of investment is closed. The relationship between pre-money investment and post-money investment is as follows:

$$\text{Post-Money Valuation} = \text{Money (Investment)} + \text{Pre-Money Valuation}$$

Pre-money valuation: The valuation of the company just before closing a new round of investment, including the value of the idea, the intellectual property, the assembled management team, and the opportunity.

Terminal value: The valuation of the company at exit; that is, the proceeds of the sale of the company via a merger or acquisition or an initial public offering and at which time the investors’ ownership can be liquidated.

ROI: The cash-on-cash return on investment expected for such an investment in the year of the harvest, or exit. This ROI is commonly expressed as a multiple of invested cash—that is, 10x, for example—regardless of the time since investment (n years).

Valuation of Pre-revenue Companies: The Venture Capital Method (continued)

Terminal Value

The valuation of an investor-funded company at exit in the n th year can be estimated by a variety of techniques. One common method is to (a) estimate revenues in the exit year; (b) use industry standards for earnings as a percentage of revenues; and (c) find price/earnings ratios for companies in the business vertical.

For example, 1) we estimate our target company can achieve revenues of \$50 million in the exit year; 2) well-managed companies in this business segment typically earn 15 percent after-tax earnings; and 3) the market value for companies in this business is typically 12x earnings (a P/E ratio of 12). We can then calculate the terminal value in the n th year at $\$50 \text{ million} \times 15 \text{ percent} \times 12 = \90 million .

Another method for estimating terminal value is to use a multiple of annual revenues. Companies similar to the target company in the previous example might be selling for twice revenues in the n th year. The terminal value by this method, would be $2 \times \$50 \text{ million} = \100 million .

These are only two of many methodologies for estimating terminal value. Careful investors often use a weighted average of multiple methods to calculate the estimated terminal value for the formula at the beginning of this article.

Anticipated Return on Investment (ROI)

My target ROI for investing in the first professional round of funding in a seed/start-up company is 30x. This number assumes the company has a first-time entrepreneur building a management team, a prototyped product, identified customers, some intellectual property as a competitive advantage, and no revenues. For companies that have met additional milestones, I might accept a lower ROI for calculating post-money valuation with Professor Sahlman's formula.

"Why so high?" some might ask. Isn't this really greedy? Not at all! Recall that Villalobos estimates investors in high-growth companies are likely to suffer 3x to 5x dilution between investment and exit. This dilution substantially reduces the eventual ROI at harvest. Even so, dilution is only part of the logic behind such a "high" anticipated ROI for seed/start-up investments.

Very early-stage investing is very high-risk investing. In a typical portfolio of ten companies, seed/start-up investors can expect three to five of those companies to fail completely: no return of capital; a total write-off. Another three or four will provide some return of capital or a small return on investment. Investors hope that these three or four companies will return all the invested capital of the original portfolio at exit. For harvesting the funding of seed/start-up companies, investors expect to achieve virtually all of their ROI beyond return of capital from one, or perhaps two, companies.

To provide an ROI for their portfolios that justifies the considerable risk involved in seed/start-up investing, the winners must be home runs yielding 10x to 50x invested capital. And since home runs are so rare, investors must make sure that all companies in their portfolios are sufficiently scaleable to potentially achieve these whopping returns. Expecting a 20x to 30x ROI in the simplified post-money valuation calculation is a necessity for successful seed/start-up investing.

Valuation of Pre-revenue Companies: The Venture Capital Method (continued)

Using the Simplified Venture Capital Method

So, if the terminal value of a company seeking seed/start-up capital is estimated to be \$60 million and we assume the stage of the company is appropriate for investors to expect 30x ROI in year of harvest, then the post-money valuation of this company can be estimated at \$2 million. If the required investment is \$0.5 million, then the pre-money valuation would be \$1.5 million. These calculations are shown in the following formulas:

$$\begin{aligned} \text{Post-Money Valuation} &= \frac{\text{Terminal Value in the } n\text{th year}}{\text{Anticipated ROI in the } n\text{th year}} = \\ &= \frac{\$60 \text{ million}}{30x} \\ \text{Post-Money Valuation} &= \$2 \text{ Million} \\ \text{Pre-Money Valuation} &= \text{Post-Money Valuation} - \text{Money (Invested Capital)} \\ \text{Pre-Money Valuation} &= \$2 \text{ Million} - 0.5 \text{ Million} = \$1.5 \text{ Million} \end{aligned}$$

Summary

For the past decade or so, the average pre-money valuations of seed venture capital deals have been between \$1.5 million and \$2 million. Furthermore, my experience is that typical pre-money valuations for seed/start-up companies are between \$1 million and \$3 million. Higher pre-money valuations can be justified based on experienced management teams that have more valuable intellectual property and that achieve more milestones than companies with lower pre-money valuations.

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Valuation Divergence

Luis Villalobos

An important voice in the angel investing world, Luis Villalobos has contributed a practical new term--“valuation divergence”-that focuses on a little understood fact of angel investing: Returns on investments in a company do not increase in direct proportion to the company’s market valuation. Entrepreneurs and investors alike will benefit from a better understanding of this concept.

Article

Return for an equity investor in an early-stage venture is based on the increase in valuation of the shares the investor received. But as the valuation of a venture increases, the valuation of the shares increases at a much lower rate or might even decrease. This disparity in valuation increase is what I call “valuation divergence.”

How divergence affects investors. Most entrepreneurs and investors assume that as the venture valuation increases, the value of the shares will increase proportionately. A typical funding proposal from an entrepreneur says, “I will sell you 10 percent of my venture for \$1 million, and in five years when I sell my venture for \$150 million, you will receive \$15 million (10 percent of \$150 million). That is 15x what you invested and a terrific return.”

In reality, even if the venture achieves an exit value of \$150 million in five years, the investor will be fortunate to get back \$3 million to \$5 million—a 3x to 5x return. More typical, this return is clearly far below what entrepreneurs generally anticipate for investors. Entrepreneurs who understand the concept of “divergence” usually expect more modest valuations.

Gadzoos investment. The investment that led to my epiphany on valuation divergence was in Gadzoos Network in 1996. It was part of a \$2 million angel round with post-money valuation of \$6.6 million and pre-money of \$4.6 million. By late 1998, the company had done a venture-capital round at \$25 million post-money and then successive rounds with strategic investors at post-money valuations of \$79 million and \$156 million. Gadzoos had already increased 24x, so I daydreamed it wouldn’t take that much to increase another fourfold in valuation and be sold for \$660 million.

That would have provided that near-mythical 100x return.

Epiphany on divergence. In fact, at the close of the Gadzoos IPO, my shares were worth 101x what I paid for them, and I was elated. Then I realized the company valuation at the market close of its IPO had increased not by 101x but by 284x—almost 3x more than my shares. So I compiled the data and had my epiphany. The table reflects the details of Gadzoos’s valuation, round by round, from my angel investment to close of IPO.

Round	Angels	VC	SP # 1	SP # 2	IPO
Date	Jan-96	Sep-96	May-97	Sep-98	Jul-99
\$ per Share	0.74	1.80	4.78	7.65	74.81
Pre-money (\$X million)	4.6	17.0	69.4	135.1	1,802.7
Money (\$X million)	2.0	8.0	10.1	21.0	73.5
Post-money (\$X million)	6.6	25.0	79.5	156.1	1,876.2
Angel Equity %	30.3%	19.5%	16.3%	13.2%	10.8%

The columns represent the data from five funding rounds. In the first round angels (including me) invested \$2 million and received 30.3 percent of the equity, with shares at \$0.74. At the close of the IPO, the venture’s valuation was \$1.876 billion, an increase of 284x ($\$1.876 \text{ billion} \div \6.6 million), and the price per share was \$74.8125, an increase of 101x ($\$74.8125 \div \0.74)—both keyed to the post-money valuations of the angel round. The “divergence” is the ratio of increase in respective valuation of the venture versus investor shares. In this case, the divergence was 2.8 ($284x \div 101x$).

Valuation Divergence

(continued)

Expect divergence, even in successful investments. Although Gadzoox is just a single example, it's a powerful one. After all, how many early-stage investments are in a company for which the valuation goes from less than \$7 million to nearly \$2 billion in three-and-a-half years? The data I am compiling for my book strongly suggest that divergence for successful exits is usually between 3x and 5x.

Dilution causes divergence. Another way to look at divergence in Gadzoox is that the angels' ownership was diluted to 10.8 percent from 30.3 percent ($30.3 / 10.8 = 2.8$). Although investors and entrepreneurs are generally familiar with the concept of "dilution," few consider how it affects the valuations of company and investor shares. I developed the concept of divergence to emphasize how these valuations change from investment to exit.

The "no dilution" illusion. Entrepreneurs often believe that subsequent financing won't be needed to reach their five-year plan numbers, so dilution won't occur. But optimism is part and parcel of the entrepreneurial spirit and, in this case, only masks reality. Most ventures lose money for the first couple of years. Even those few that are immediately profitable rarely grow to \$50 million or \$100 million in three to five years without substantial infusions of capital. A company that does \$100 million in its fifth year, for example, can easily need \$10 million for cash balances, \$20 million for receivables, and cash to finance capital expenses. In addition, non-financing issuances of equity need to be considered.

Summary. An understanding of how divergence works can make negotiations between entrepreneurs and investors more productive and less contentious because expectations on both sides will be more realistic. In nearly all cases, between an early-stage investment and an exit divergence the valuation of investor shares will likely increase by 3x to 5x less than the company valuation.

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Valuation Estimator

William H. (Bill) Payne

A highly successful angel investor and entrepreneur identifies and puts to the test a valuation calculator tool. He finds that it works very well, thank you. By answering twenty-five questions, entrepreneurs and investors arrive at valuations that can reasonably be used as a practical guide to investing.

Article

Created by Akira Hirai, managing director of the Phoenix office of Cayenne Consulting, this valuation calculator tool consists of twenty-five questions for establishing the pre-money valuation for high-tech, seed- (startup) and early-stage companies looking for angel or venture capital investment. It provides useful insights for entrepreneurs and investors alike and can be found at <http://www.caycon.com/valuation.php>.

Each question can be answered at four response levels, which measure progression from immature ventures to more developed companies and larger market opportunities. In my experience, the minimum answers required to calculate a valuation using this tool are the second level of response for all questions except one through six, eleven, eighteen, and twenty-four. Each of these requires at least a third-level response to calculate a valuation. Higher-level responses to these nine questions are very important to estimating higher valuations.

The minimum valuation I could determine with this tool was about \$0.5 million and the maximum was more than \$40 million (all level-four answers). Based on my experience, investing in more than forty startup companies over twenty-five years, this valuation estimator produced reasonable valuations.

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The **Power of Angel Investing (PAI)** is a series of education programs about angel investing, developed by the Ewing Marion Kauffman Foundation and distributed by the Angel Capital Education Foundation, with content provided by angel experts and angel group leaders from around the country. Participants have ranked our programs 4.5 or better out of 5.0 because of:

- Importance of topics and content
- Relevance & benefit of information
- Quality & knowledge of speakers
- Entertaining presentation of information

Available Programs

Seminars (full-day events)

- **Angel Investing – An Overview** provides a comprehensive overview of the angel investing process. Originally developed for investors with limited or no angel investment experience, it also provides good knowledge for entrepreneurial support professionals, university faculty, and policy makers to assist their client entrepreneurs for the angel investing process.
- **Starting an Angel Organization** provides a comprehensive overview of the strategic and tactical steps needed to create the angel group that best fits the characteristics and interests of your community. It is designed for investors, community leaders, university leaders, and entrepreneurial support professionals who are interested in leading or helping develop high-quality angel organizations.

Advanced Workshops (3 to 4 hour events)

Each of the workshops drills down on critical aspects of the angel investing processes presented in the Angel Overview Seminar. They are designed for investors who have participated in the full-day PAI seminar programs or have made five to ten angel investments, as well as for service providers and other entrepreneurial support professionals who are interested in learning more about the specifics of angel investing to help prepare their client entrepreneurs for equity funding.

- **Doing the Deal: Term Sheet**
- **Due Diligence**
- **Valuation and Portfolio Strategy**
- **The Post-investment Relationship: Entrepreneurs and Angels**

Valuation and Portfolio Strategies Workshop

The purpose of this workshop is to address the following questions (and more) about valuation and portfolio strategy:

- What things should be considered when valuing a venture?
- What can an angel investor do to help make angel-entrepreneur negotiations less contentious?
- How can the typical disconnect that occurs between how and angel and an entrepreneur be addressed?
- What rules of thumb do angels use when crafting or measuring their portfolios?
- What insight into effective portfolio strategy can investors gain by exploring data from actual angel portfolios?

Who Should Attend?

- Members of angel groups who have completed the Power of Angel Investing Overview seminar or have made several angel investments.
- Entrepreneurial support professionals, service providers, and entrepreneurs.
- Audiences who are interested in learning more about establishing a pre-money valuation for seed/startup companies, the importance of the company scalability to angel investors and the critical parameters for a successful angel portfolio strategy.

What is the Agenda?

This workshop is designed to be highly interactive for an audience of 50 participants or less and deliverable in four to hours, including a 15 minute break. The format features

a PowerPoint presentation delivered by an experienced local angel from the host organization, extensive video segments presented by two experienced angel investors (Bill Payne of Vegas Valley Angels and Luis Villalobos of TechCoast Angels), hands-on exercises for applying the concepts presented in the videos, a video panel discussion, and local group discussion.

How is the Workshop Taught?

The workshops can be self-deliverable. ACEF, which distributes the program for the Kauffman Foundation, will provide host groups with the tools necessary for local experts to deliver the workshop. Optional lead instructors can be retained by the local host organization (at their expense) from a certified list if the host organization prefers to bring in an outside expert angel to lead the workshop.

Study Materials

A customized workbook will be provided to each participant that includes presentation content, slides, and exercise worksheets.

Workshop License

The host will enter into a licensing agreement with ACEF (acting for the Kauffman Foundation). The license fee includes the provision of significant support for marketing and implementation. Optional national experts from a certified list can be retained by local host organization to serve as lead instructors, with the host organization to negotiate with the outside expert on costs for their time and travel.

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