

# Valuing Early-Stage Businesses: The Venture Capital Method

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For investors focusing on start-ups and early-stage companies, one of the most challenging tasks is determining how to price a financing – deciding how much equity (or ownership) the investor must receive for the capital being invested. Likewise, for entrepreneurs the big question is how much equity they will have to give up when raising new capital.

Deciding how much ownership is required involves determining how to value the company (or idea). Traditional methods of determining this value are not helpful because start-ups and most early-stage companies don't have the financial results required to use such methods. There are usually few, if any, assets; minimal or no sales; no profits; and projections that are often based on formulas and guesses. In addition, experienced early-stage investors know from experience that most new ventures will take longer and need more capital than even the most conservative entrepreneur expects.

Thus, when addressing the valuation and ownership question, experienced investors use a different approach known as “the venture capital method” of valuing early-stage companies.

## The Framework

The venture capital method is based on a framework that is described well in several excellent technical notes.<sup>1</sup> In its simplest form this underlying framework uses a discounted cash flow or net present value approach to relate the future value of the company to the current investment being made, as follows:

1. Determine the projected value of the company at a future date – the **terminal value (TV)**.

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<sup>1</sup> See Sahlman, William A., and Scherlis, Daniel R., “A Method for Valuing High-Risk, Long-Term Investments,” 2009, Harvard Business School, 9-288-006; Lerner, Josh, “A Note on Valuation in Private equity Settings,” 2011, Harvard Business School, 9-297-050, pp. 7-9; Chaplinsky, Susan, “Valuing the Early-Stage Company,” 2009, Darden Business Publishing, UVA-F-1471; Hellman, Thomas, “A Note on Valuation of Venture Capital Deals,” 2001, Stanford Graduate School of Business, E-95.

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This technical note was prepared by Professor Rob Johnson. April 2020.

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Last edited: 21/4/20



- Discount this terminal value to the present, using the investor's target IRR (usually a very high rate, as discussed below) to get what is called the post-financing valuation ( $V_{\text{post}}$ ). (Since this post-financing valuation includes the new capital that is being invested, one can also calculate the implied value of the company before the financing – the pre-financing valuation ( $V_{\text{pre}}$ ) – by subtracting the amount of capital ( $C$ ) being invested from the post-financing valuation:  $V_{\text{post}} - C = V_{\text{pre}}$ .)
- Calculate the percentage ownership required for the investor by dividing the amount of capital being invested by the discounted terminal value (or  $V_{\text{post}}$ )<sup>2</sup>:

$$\% \text{ ownership} = C / V_{\text{post}}$$

- Adjust the percentage ownership to take into account anticipated future rounds of funding.

The technical notes referred to above explain in detail how these calculations work, including the more complex calculations involved in the last step above. They also offer cautions about the application of this method.

### Using the Framework

If there were only one single financing, then applying the venture capital method using this framework would be straightforward, simply following steps 1-3 above. The basic numbers – determining a terminal value and establishing a target rate of return – may be challenging, but most professional investors are capable of making educated decisions about these factors. Using an appropriate method to determine the terminal value (usually applying a price earnings ratio to future projected earnings) is relatively straightforward, and experienced investors usually have a good idea of what the target return rates (IRRs, or discount rates) should be at various stages in a company's development. While these rates may be difficult to defend in any kind of technical analysis (they are usually very high and can range up to 80% or more, depending on the stage of development of the company and the perceived risks involved in the deal), they are generally accepted in the venture capital community.

Having said that, these first three steps still present some difficulties. Determining a terminal value (step 1) involves also choosing an exit date, which any experienced early-stage investor knows is extremely difficult to predict. Basing a valuation on a fixed exit date is speculative at best, as the timing could vary by any number of years from deal to deal. That factor alone can make a big difference in the outcome of the calculations.

Yet where this method becomes much more problematic is when one has to take into account potential future rounds of financing (step 4). Indeed, very few start-ups or early-stage ventures make it with only a single round of financing, so this is a critical component of the model. One may reasonably estimate the timing and even the amount of the very next round of financing, but it is also difficult to predict how that round will ultimately be priced. One could just as easily have a "down round" as a valuation increase, and the effect on everyone's ownership will vary widely depending on this variable alone. Then factoring in subsequent financing rounds involves even greater uncertainty, not only in terms of pricing but also regarding the amount of capital to be raised and the timing of those rounds.

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<sup>2</sup> Alternatively, one can work forward, using the target IRR to determine the required future value of the investment and dividing that by the terminal value (TV) to get the percentage ownership. Both approaches produce the same result.



One can run all kinds of scenario analyses and even use Monte Carlo analysis to try to make sense of the myriad of possible assumptions, but the range will inevitably be so wide as to make this effort virtually fruitless. For this reason, most experienced investors don't actually do such calculations for early-stage investments. While they clearly understand this framework, they apply the venture capital method in a different way.

## How Venture Capitalists Apply the Method

Experienced early-stage investors usually apply the mathematics of the venture capital method in the reverse order. First determine the value of the business today, before the financing ( $V_{pre}$ ). Then once we decide how much capital the company actually needs in this financing round ( $C$ ), add these two amounts together to get the valuation of the business following the financing ( $V_{post} = V_{pre} + C$ ).

Consider a real example. Europa Venture Investors has decided to invest €1,250,000 in Medistat, a pre-revenue healthcare services company founded twelve months earlier by two entrepreneurs. Europa has determined (for reasons we will see later) that the company should be valued at €2,500,000 before the financing. Thus:

$$\text{Pre-financing valuation } (V_{pre}) = \text{€}2,500,000;$$

$$\text{Post-financing valuation } (V_{post}) = V_{pre} + C = \text{€}2,500,000 + \text{€}1,250,000 = \text{€}3,750,000.$$

It is important to understand that both the pre-financing valuation and the post-financing valuation are *implied* valuations resulting from a financing transaction. They represent the value at which a particular investor is willing to invest in a privately-held (or unquoted) company, not necessarily the value at which the company could actually be sold at that moment. Yet these valuations help address other important financing questions.

The first question – how much equity does the investor require for his/her investment – involves a simple calculation using the amounts above. The percentage equity required (**%E**) is simply the ratio of the amount invested in this round to the valuation following completion of the financing:

$$\%E = C / V_{post}$$

In the financing of Medistat, the equity required by Europa is calculated as:

$$\%E = \text{€}1,250,000 / \text{€}3,750,000 = 33.3\%.$$

Thus Europa would need to receive 33.3% of the ordinary (or common) shares of Medistat in order to make this investment, leaving management with 66.7% of the equity.

### ***The Starting Point: Pre-Financing Valuation ( $V_{pre}$ )***

It sounds simple, and indeed the calculations are simple; however, you may already be asking one critical question: How did Europa determine that Medistat should be valued at €2,500,000 prior to the financing? Indeed, what is a company with no customers and no revenues worth? What is a company whose product is still in development worth? What is a new idea worth? This brings us to the art (vs. mathematical science) of venture capital.