BUILDING A DISCOUNT RATE FOR EARLY-STAGE COMPANIES

DECEMBER 2020

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This thought leadership paper provides insights on building a discount rate for early-stage companies.

INTRODUCTION

Estimating the value of early stage companies entails a comprehensive assessment of the risk profile associated with multiple factors especially those critical to the success of the company. Risk levels are determined by analysis of peer companies in the industry having similar characteristics, assessment of the management team, industry dynamics, market penetration strategies, consumer appetite and other economic factors.

The conventional approaches for assessing the risk and estimating the discount rates *(Capital Asset Pricing Model ['CAPM'], Build up Model, Fama French model)*, are dependent upon the availability of market prices for the securities issued by the firm. Additionally, these models focus primarily on the market risk, i.e., it only includes risks that cannot be diversified. With early stage companies, these assumptions are subject to challenges.

Firstly, most young companies are not publicly traded and have no publicly traded bonds outstanding. Consequently, it is not possible to run a regression of past returns, to arrive at an equity beta, or use a market interest rate on debt. Also, the equity in an early stage company is often held by investors who are either completely invested in the company *(founders)* or only partially diversified *(venture capitalists).* Therefore, it is not prudent to assume that only market risk would matter as other firm specific risks like product risk, risk of failure, execution risk and industry risk are better indicators of uncertainties faced by an early stage company.

Discount rate computation through venture capital method

Considering the challenges in application of conventional approaches, the venture capital approach is one of the most widely used methods for computing discount rates for early stage companies. This approach involves consideration of a potential venture capitalist's target rates of return as a proxy for the discount rate. Since these rates factor in the target returns demanded by venture capital investors from individual portfolio companies as well as the probability of success of these companies, venture capital rates facilitate consideration of the viability of the business.

Venture capital method

The venture capital method is based upon the stage of development of the company. It requires an analysis of the company's basic characteristics and determining its stage of development. On determination of the stage of development, a range of discount rates based on venture capital studies, pertaining to early stage companies in the stage of lifecycle similar to the subject company, is selected.

Development stages of an entity for venture capital investment are generally defined as follows:

STAGE	COMPANY CHARACTERISTICS
Start-up	Start-up investments are typically less than one year old. A start-up entity initially needs capital for product development, prototype testing, and test marketing *(in experimental quantities to selected customers)*. This stage covers studying potential market penetration, bringing together a management team, and refining the business plan.
First stage	Investment proceeds through the first stage if prototypes are successfully developed and technical risk is considered minimal. Likewise, market studies must indicate that the product is viable and potentially profitable. First stage entities are unlikely to be profitable.
Second stage	A second stage entity has shipped product to customers and has received real feedback from the market i.e., it has a viable product and an established market. Management is beginning to understand the time frame required to access markets but may not fully know the limits to potential market penetration. The entity is probably still unprofitable, or only marginally profitable. It probably needs capital to finance equipment purchases, inventories, and receivables financing.
Third stage	Third stage companies experience rapid growth in sales and positive profit margins. Downside investment risk is minimal. However, rapid expansion means more working capital is required than can be generated from internal cash flows. New venture capital investments would be used for the expansion of manufacturing facilities, expanded market reach, or for product enhancements. At this stage, banks may be willing to supply credit to the extent that it can be secured by fixed assets or receivables.
Fourth stage	Entities at the fourth stage of development may still need outside cash to sustain rapid growth, but they are successful enough and stable enough so that the risk to outside investors is significantly reduced. The owners may prefer to finance growth with debt in order to prevent the dilution of their equity ownership. Commercial bank credit will play a more important role. Although the goal of many venture capital investors is to harvest their investment through a sale, public offering, or leveraged buy-out, the timing of the potential cash-out for stage four venture capital investors is still uncertain.
Bridge/Mezzanine	Planning for their IPO but need additional funds to carry them through to the completion of the offering. As a rule of thumb, mezzanine rounds are done within six months of a scheduled IPO.

Two studies provided by Plummer and Scherlis and Sahlman, summarized below, provide guidance on the rates of return required by venture capital investors at various stages of an entity's development:

Range	STAGE OF DEVELOPMENT					
	Start-up	First stage	Second stage	Third stage	Fourth stage	Bridge/ Mezzanine
Plummer[1]	70% - 50%	60% - 40%	50% - 35%	50% - 30%	50% - 30%	35% -25%
Scherlis and Sahlman[2]	70% - 50%	60% - 40%	50% - 30%	40% - 30%	40% - 30%	35% -20%

Issues with using the venture capital approach

Although the venture capital approach is a reliable approach for valuing early stage companies, there are certain drawbacks:

- The rates were propounded back in 1987 thus the assumptions may not hold true in the current market scenario, which is very different compared to the period during which this study was conducted;
- The factors considered are highly subjective and cannot be the sole determinant of the company's risks;
- It does not account for political, economic and technological factors in the company's external environment; &
- The discount range is dispersed, which may involve use of significant judgement for selection of the appropriate rate.

[1] *Plummer, James L., QED Report on Venture Capital Financial Analysis (Palo Alto: QED Research, Inc., 1987).*

[2] *Scherlis, Daniel R. and William A. Sahlman, A Method for Valuing High-Risk, Long Term, Investments: The Venture Capital Method (Boston: Harvard Business School Publishing, 1987).*

BUILDING A DISCOUNT RATE FOR EARLY STAGE COMPANIES *(CONT…)*

Illustration: Valuation of System Organizer – Venture capital approach

System Organizer is a small software company that has developed a new computer virus screening program that it believes will be more effective than existing anti- virus programs. The company is fully owned by its founder and has no debt outstanding. The firm has been in existence for a year and has offered a beta version of the software for free to online users but has never sold the product *(no revenue).* During its year of existence, the company incurred $5 million in operational expenses, thus recording an operating loss for the year.

SPECIFIC-RISK CONSIDERATION

The Company is in an emerging growth phase of its development with rapid changes expected in its operating model and cash flows. Additionally, it is subject to high possibility of failure given its early stage of development and the competitive IT marketplace in which it operates. The risk that the Company may survive but not flourish, resulting in a failure to achieve the forecasted level of revenues and profitability, is envisaged.

Assessment of stage of development is summarized as follows:

Criteria	System Organizer	STAGE OF DEVELOPMENT					
		Start-up	First stage	Second stage	Third stage	Fourth stage	Bridge/ Mezzanine
		70% - 50%	60% - 40%	50% - 30%			35% -20%
Management team	√	√	√	√	√	√	√
Business Plan	√	√	√	√	√	√	√
Financing	√		√	√	√	√	√
Expense History	√		√	√	√	√	√
Prototype	√		√	√	√	√	√
Established Market				√	√	√	√
Revenue Growth					√	√	√
Profitable						√	√

SELECTION OF DISCOUNT RATE

Based on the above assessment of the current stage of company's development, it can be concluded that System Organizer is in the "first stage" of development. Thus, the discount rate shall ideally be in the range of 40%-60%. On further analysis of the overall company and industry operating context, a definite discount rate within the range of 40%-60% can be determined, say 45%.

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