

VALUATION OF EARLY-STAGE TECHNOLOGY COMPANIES

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EARLY-STAGE TECHNOLOGY COMPANIES: ENIGMAS OF VALUATION

Early-Stage Technology Companies ("ESTCs"), such as pharmaceutical developers and computer chip designers, differ greatly from more mature businesses in other industries. Specifically, ESTCs are commonly characterized by ongoing losses, little or no revenues, labor-intensive R&D work as a primary function, and an inability to obtain commercial loans. Financings for such companies are held as cash, which is quickly depleted (or "burned") by the high personnel costs and materials expenses associated with R&D. The resulting financial profile renders traditional valuation approaches inadequate. The traditional valuation model is not a universal one, and cannot be expected to suggest reliable valuation indications for all companies in every industry. ESTCs inherently require sophisticated and unique approaches for determining their value. Consequently, HVA formulates an ESTC Valuation Paradigm that specifically addresses and overcomes the limitations of more traditional valuation approaches with respect to ESTCs. The Paradigm involves correlations arising between market capitalization, book value, total invested capital, long-term cash flows, and phase of product development.

THE EARLY-STAGE TECHNOLOGY COMPANY VALUATION PARADIGM

For the valuation of ESTCs, HVA investigates considerable information regarding the industry, including any merger or acquisition ("M&A") activity, initial public offerings ("IPOs"), follow-on offerings, industry analyst reports, press releases, newswires, SEC filings, and prospectuses. An ESTC typically specializes in the development of one group of related products (e.g., cardiologic therapeutics or drug compounds). To obtain a list of comparable companies, HVA narrows the list of companies to those that appear to focus on existing or proposed products similar to those of the subject company, and that are at a similar stage of development as the subject company. Studying such companies in detail, HVA then selects for analysis public companies with products and financial profiles most like the subject company. Information from the comparable companies serves as inputs to the four valuation approaches described below:

THE REVENUE MULTIPLIER APPROACH

provides an indication of value based on market-driven multiples applied to the subject company's revenue level. For traditional valuation approaches using comparable companies, analysts divide a company's market capitalization by its revenue, operating income, EBDIT, EBIT, and net income. These market multiples are applied to the subject company's financial results to derive indications of value. Under the traditional methodology, market capitalization to revenue is often considered somewhat dubious and unreliable. However, HVA relies heavily on this approach for valuing ESTCs, since the other above-mentioned market value approaches using other income statement line items often suggest negative values. Likewise, the Revenue Multiplier Approach is advocated by many Venture Capitalists who, in a survey presented in the QED Report on Venture Capital Financial Analysis, described the "most appropriate" circumstances for using the Revenue Multiplier Approach as the following: (a) high R&D expenditures, (b) early-stage companies, (c) no earnings record, and (d) proprietary technology and inherent acquisition value. These characteristics are common to ESTCs.

THE MODIFIED DISCOUNTED CASH FLOW ("MDCF") APPROACH

is used for the valuation of ESTCs since negative conclusions of value often result from the traditional Discounted Cash Flow approach due to recurring losses, possibly even in the terminal year. Both DCF approaches attempt to determine the value of future cash flows in today's dollars; that is, the lump sum that could be received by investors today, if all of the company's expected future cash flows (including its terminal value) were paid today (after discounting for the time value of money). The difference between the MDCF and the traditional DCF lies in the calculation of the terminal value. Under the MDCF, a market-derived revenue multiple (as opposed to earnings multiple) is applied to the expected revenues for the terminal year in deriving the terminal value. Due to the speculative nature of technology industries and the volatility of stock prices for companies therein, discount rates typically range between 35% and 70%. In determining a discount rate for use in the MDCF approach, HVA utilizes the Capital Asset Pricing Model ("CAPM") as a basis for deriving the rate. At the core of the CAPM is the choice of Beta, which is essentially computed, from the stock price volatility of comparable public companies.

THE DEVELOPMENT PHASE APPROACH

seeks to determine the subject company's value based on the phase of development of its product(s). In direct contrast to non-ESTCs, the value of an ESTC may increase even though the company sustains substantial and continual losses, and holds a product portfolio that is far from being marketable. As an ESTC company progresses through its life cycle toward becoming a viable company and its products proceed through successive milestones, the value of the company increases along with its underlying "Technology Value." For value indications under this approach, HVA creates a matrix of comparable companies and recent financial and development phase information.

The matrix includes each comparable company's market value, market value less cash ("Technology Value"), invested capital, products under development and, most importantly, the corresponding development phase for each product. HVA then performs statistical analyses on the range of values suggested by this information to establish theoretical bands of value that correspond to the progress of product development. The resulting analyses indicate the level of market capitalization "awarded" to an ESTC as its products progress through the development process.

THE INVESTED CAPITAL TO MARKET CAPITALIZATION APPROACH

serves as a proxy for the Development Phase Approach. The assumption is that Market Capitalization is based on valuations by industry analysts who have considered (a) potential market size, (b) likelihood of governmental (e.g., FDA) approval, and (c) projected introduction date of a company's developing products. Since ESTCs seldom generate sufficient cash flows to support their R&D projects, they must rely on invested capital in order to advance their products. As the product development continues (without setbacks), the certainty of success and of receiving the anticipated cash flows increases substantially, resulting in a corresponding increase in the Company's value. Based on comparable company ratios, HVA views the dollar the magnitude of invested capital as a representation of an ESTC's progress, since it could not have reached its current state of development without the investment of such capital.