The Option Pricing Model - Allocation of Value

David Mesner, Valuation Analyst | Private Capital Markets

Okay, so you have a company's value, but how should that value be allocated to the owners of the company? Each holder of the company is to receive his or her respective portion of the enterprise value based on ownership upon an exit event, and allocation is necessary to highlight a specific investor's position within said allocation. When valuing a venture stage company, it is often difficult to determine the exact timing and means by which the company will complete a successful exit. These scenarios can vary based on individual circumstances and goals set by management including but not limited to:

- An initial public offering
- A possible merger with a larger or parallel business
- An acquisition of the entity

There are other unknowns within the time frame between a set valuation date and prospective exit date such as the company's performance after valuation date. There are some parameters that can lend perspective into the future goals and milestones set by the company, and historical information can be gathered as well to paint a better picture. To best reflect the uncertainty of potential increases and decreases over time as well as perceived risk, the option pricing model (OPM) is applied. This is also the most common allocation method used by the IHS Markit Private Capital Markets team. There are specific market inputs that contribute to the Black-Scholes calculated results of an OPM along with input from management regarding the time to exit. In Section 6.41 of the AICPA's Accounting and Valuation Guide for Valuation of Privately-Held-Company Equity Securities issued in 2013, the merit of the option pricing model allocation method is highlighted:

> "[The OPM is] the most appropriate method to use when specific future liquidity events are difficult to forecast. The use of the method is generally preferred in situations in which the enterprise has many choices and options available, and the enterprise's value depends on how well it follows an uncharted path through the various possible opportunities and challenges."

The inputs necessary to carry out the OPM calculation include an enterprise value (determined using one valuation method or a combination of methodologies), volatility (volatility is discussed in greater detail in these Ipreo blog posts – "Introduction to Volatility" & "How Volatility Affects Valuation"), time to exit in years and the risk-free rate or constant treasury yields in line with the time to exit. Volatility and the time to exit will be the largest contributors to fluctuation in allocation and potential in the future because of their influence on said value. Although the risk-free rate will shift with any changes made to the exit timing, these will be small shifts and relatively immaterial to the final value. Although the OPM is limited to one time to exit assumption, it is still important to consider that the value of a company does not remain static but will accrue value as time passes and the company reaches different stages of development. In addition to the market inputs that were mentioned, it is also important to note that the OPM utilizes the terms and conditions of the subject company's capital structure to determine payout points in the analysis.

Although the OPM does not account for future equity fundraising or debt support, and despite the allocation method selected, the report analysis can only be conducted with information that is known or knowable as of the stated valuation date (per AICPA guidance). As always, it is crucial in the analysis process to have a working relationship with the subject company's management team in order to gain better insight into probable outcomes regarding milestones, developments and an eventual exit targeted for a future date. A follow up article will discuss changes in time to exit and its impact on the OPM.

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