

CHEAP STOCK VALUATION - ALLOCATION METHODS

Traditionally, early stage privately-held companies have estimated the fair market value and fair value of their common stock by applying a percentage discount to the price of their most recent round of preferred stock financing or a percentage discount to an expected initial public offering price. These approximations, while straight-forward and convenient, do not provide sufficient support for the determination of fair market value and fair value. Moreover, these are not acceptable methods for stock option pricing purposes under IRC Section 409A or financial reporting purposes under FASB ASC 718 and 505-50 (which together replaced FASB 123(R)). Specifically, these methods do not consider the economic differences between preferred and common stock such as liquidation preferences, cumulative dividends, participation, and non one-to-one conversion ratios. This Focus is the second in a series of articles on cheap stock valuations.

Since the issuance of the 2004 AICPA Audit and Accounting Practice Aid Series, "Valuation of Privately-Held-Company Equity Securities Issued as Compensation," the industry has settled on three core allocation methods: (1) Current-Value Method; (2) Option-Pricing Method; and (3) Probability Weighted Expected Return Method. Depending on the company's situation, one method may be more appropriate than another. However, all three methods have strengths and weaknesses and vary in complexity and it is up to the valuation specialist to select the most appropriate allocation method(s).

**THE CURRENT VALUE METHOD**

The Current Value Method ("CVA") is the most straight-forward method as it does not require complex modeling or proprietary software. This method is also referred to as using the "water fall" to allocate value. The equity value<sup>1</sup> determined as of the date of valuation is allocated to the security classes based on their rights and restrictions. The application of this method is typically limited to two circumstances: (1) when a liquidity event of the company is imminent; and (2) when the company is at such an early stage of its development that there are no significant equity investors or virtually no progress has been made to the company's business plan.

**SUMMARY OF CVA**

Strengths - The CVA is easy to apply and understand, as it does not require complex modeling or proprietary software. Also, the preferred shareholders are assumed to take the most favorable outcome available based on the company's equity value.

Weaknesses - The method is neither forward looking nor comprehensive in considering the possible outcomes of the company, relying on only the equity value as of the date of valuation to derive preferred and common stock value. Most importantly, the application of this method is limited to two circumstances.

**THE OPTION-PRICING METHOD**

The Option-Pricing Method ("OPM") is the most commonly used allocation method due to its ease of implementation. However, the underlying assumptions of the OPM, which is based on the Black-Scholes Option pricing methodology, are often misunderstood, leading to instances in which the OPM is applied to companies whose pricing characteristics do not conform to Black-Scholes theory. One critical assumption is that the company's possible equity value follows a lognormal distribution.

However, this assumption may not always hold. For example, an early-stage pharmaceutical company whose success depends on several binary outcomes such as clinical trials and FDA approval, does not conform to a lognormal pattern.

The OPM values each equity class by creating a series of European call options on the company's equity value. The exercise price of each call option are based on the preferred stock's liquidation preferences, the existing options' strike prices, and other value points at which equity holders will make decisions regarding their participation in the value. The common stock receives value at the point when the amount available for distribution exceeds the liquidation preferences of the preferred shareholders at the time of an exit event. The OPM relies on three key inputs: (1) equity value, (2) time to the liquidity event, and (3) volatility.

**BACK-SOLVER**

THE OPM CAN ALSO BE USED TO SOLVE FOR VALUE AND IS REFERRED TO AS THE "BACK-SOLVER." THIS METHOD CAN BE USED TO DETERMINE THE IMPLIED VALUE OF COMMON STOCK IF THE COMPANY HAS HAD A RECENT FINANCING ROUND AND THE TRANSACTION WAS AT ARMS LENGTH. THE VALUE OF THE COMMON STOCK IS DETERMINED BY SOLVING FOR THE IMPLIED EQUITY VALUE THAT RESULTS IN THE PRICE PAID FOR THE SECURITY OF THE MOST RECENT ROUND OF FINANCING.

## EXPERIENCE AND EXPERTISE

Since 2005, Cogent Valuation has performed over 300 “409A/123R” valuations for well over 100 companies. Our projects are well diversified and are sourced 50% from the technology sector, 40% from life sciences & health care and 10% from clean tech. We have particularly deep experience in non-traditional solar utility solutions, medical devices and text analytics. Our clients span the spectrum from seed stage ventures to established and profitable organization. Approximately 50% of our projects are for B and C stage companies and more than 30% are for later stage companies. Close to 70% of our first time clients return to Cogent Valuation for additional work.

The OPM is appropriate to use when future outcomes are difficult to predict and the liquidity event is not imminent.

### SUMMARY OF OPM

**Strengths** - The OPM is easy to implement and audit. The method is forward looking as it considers a lognormal distribution of future equity values and takes into consideration the effect of the liquidation preference at a future liquidation event, not as of the date of valuation. The OPM also considers the company's capital structure, including differences in rights and values between each class of stock.

**Weaknesses** - Unlike the CVA and PWERM, the mechanics of value allocation from the OPM are not intuitive. The OPM is sensitive to underlying assumptions, and determining supportable assumptions may be difficult. Equity values are assumed to be lognormally distributed which may not hold true for all companies and industries.

### THE PROBABILITY WEIGHED EXPECTED RETURN METHOD

The Probability Weighted Expected Return Method (“PWERM”) is gaining acceptance. Its increased use is particularly prevalent in the valuation of early stage life sciences companies.

The PWERM is a forward looking analysis that incorporates the probability of various future outcomes for a company. Future

outcomes may include: a merger or acquisition, an IPO, dissolution, or remaining private.

The analysis addresses the probability and timing of each scenario. The value derived from each future outcome is discounted to the date of valuation by using the appropriate discount rate. Stated differently, the PWERM can be viewed as constructing several CVA scenarios as of future dates, probability weighting those scenarios, and then discounting them to the valuation date at an appropriate risk adjusted rate.

The PWERM requires significant subjectivity and may be difficult to support, especially if the company is at an early stage of development. The SEC prefers that companies transition to using the PWERM 12-18 months prior to effectuating an IPO.

### SUMMARY OF PWERM

**Strengths** - The PWERM is forward looking and takes into consideration the effect of the liquidation preference as of a future liquidation event; it takes the company's capital structure, including differences in rights and values between each class of stock into consideration; and the method is conceptually sound.

**Weaknesses** - The PWERM may be difficult to apply because it requires numerous assumptions about future outcomes and their probabilities, which may be challenging to determine; and the method may require complex modeling.

### CONCLUSION

All three allocation methods have their strengths and weaknesses and no single method is superior. The selection of the most appropriate method(s) to determine the fair market value and fair value of the company's common stock depends on the company's development stage, financing history, and prospects for a liquidity event. Cheap stock valuation is a constantly evolving area; therefore, it is imperative that the company engages a valuation firm that has the expertise and knowledge of the appropriate equity and asset allocation method to value the common stock of the company.

Please contact Evelyn Nguy at 415-392-0888 for further information or to arrange a meeting.

### FOOTNOTE

1) In each of the allocation methods, the equity or enterprise value can be allocated to the securities. For the purpose of this Focus, the term equity value is used interchangeably with enterprise value.

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