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Valuations

PWERM and hybrid methods for Allocation of Value

This thought leadership paper provides insights on application of PWERM and HYBRID methods for allocation of value.

Introduction

Our newsletter titled “Allocation of Value to Multiple Classes of Equity Shares in a Company” discussed the allocation of equity value using the Option Pricing Method to multiple equity classes in companies with complex capital structures.

While the option pricing approach appears to be scientifically superior to other methodologies, it is a complex and time-consuming process. In some cases, the efforts involved in the allocation exercise using the OPM may outweigh its benefits. Additionally, experts have identified certain fundamental limitations of the OPM. One of the key limitations is that the OPM assumes that the future equity values of the company are lognormally distributed.¹ This assumption may not be applicable to early-stage companies which have a high probability of failure. Thus, in case of early-stage companies, the OPM may overstate the value of the equity.

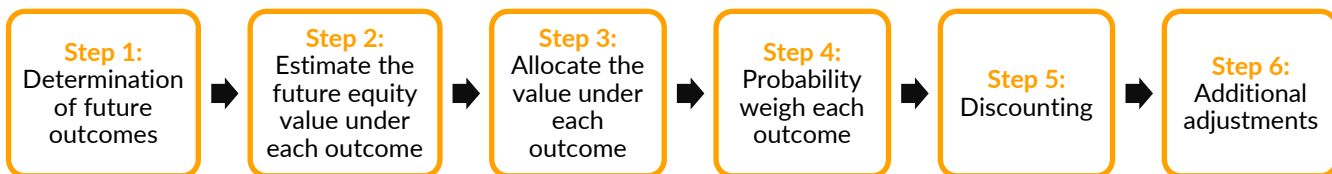
This necessitates the existence of alternative allocation methodologies. This newsletter discusses these alternative methodologies for the allocation exercise as mentioned in the International Valuation Standard (“IVS”) 200 prescribed by the International Valuation Standards Council (“IVSC”) They can be summarized as follows:

- Probability weighted expected return method (“PWERM”)
- Current value method (“CVM”)
- Hybrid methods

Probability Weighted Expected Return Method

The PWERM entails determination of the value of the equity securities of the company based upon an analysis of possible future outcomes. Probabilities are assigned to values derived under each of the future outcomes.

Steps in PWERM



¹A lognormal distribution is a continuous probability distribution of a random variable whose logarithm is normally distributed. A random variable of lognormal distribution takes only positive real values. As against a bell curve which depicts the normal distribution, a lognormal distribution is depicted by a skewed curve with a right skew since the values are only positive.

01 Determination of future outcomes

The preliminary step in the PWERM is determination of the possible future outcomes. This is usually done based on discussions with management taking into account their expectations. In this case, future outcomes represent possible exit scenarios for each of the stake holders and some common examples include:

- Initial public offering ("IPO")
- Merger or sale
- Dissolution

02 Estimate the future equity value under each outcome

The next step is the determination of the equity value of the Company under each possible future outcome. The future equity value might be a point estimate or a range of values. Equity values under some future outcomes may also be estimated using a more complex method such as the OPM. The application of OPM in the PWERM is treated as a hybrid method, which has been discussed in the later part of this newsletter.

03 Allocate the value under each outcome

Allocation of value under each of the outcomes is the next critical step in the PWERM. The allocation takes into account the rights of each class and is based on the assumption that each shareholder will seek to maximize its value. For example, in a scenario where convertible preference shareholders are likely to receive more value by converting, one would assume conversion while where they are likely to receive higher value by accepting their liquidation preference, the assumption would be aligned with that.

ILLUSTRATION

Scenario 1: Liquidation preference beneficial

(All amounts in GBP)

Description	Amount
Value of the company	100 million
No. of common shareholders	50 million
No. of preference shareholders	50 million
Conversion ratio	1:1
Liquidation preference of preference shareholders	60 million

If preference shares convert,

Description	Amount
No of common shares issued on conversion	50 million
Total no. of common shares outstanding post conversion	100 million
Value accrued per preference share on conversion	$(100 \text{ million} / 100 \text{ million}) = 1$
Total value to preference shareholders	$1 * 50 \text{ million} = 50 \text{ million}$
Conversion value higher than liquidation preference?	No

Since the conversion value (50 million) is lower than the liquidation preference (60 million) in this scenario, it is assumed that the preference shareholders will accept their liquidation preference.

Scenario 2: Conversion beneficial

Description	Amount
Value of the company	200 million
No. of common shareholders	50 million
No. of preference shareholders	50 million
Conversion ratio	1:1
Liquidation preference of preference shareholders	60 million

If preference share convert

Description	Amount
No of common shares issued on conversion	50 million
Total no. of common shares outstanding post conversion	100 million
Value accrued per preference share on conversion	$(200 \text{ million}/100 \text{ million}) = 2$
Total value to preference shareholders	$2 * 50 \text{ million} = 100 \text{ million}$
Conversion value higher than liquidation preference?	Yes

Since the conversion value (100 million) is higher than the liquidation preference (60 million) in this scenario, it is assumed that the preference shareholders exercise their conversion rights.

04 Probability weigh each outcome

Each of the future outcomes are assigned probabilities based on the likelihood of their occurrence. This results in a probability weighted expected value attributable to each class of equity.

05 Discounting

The expected value for each class of equity is discounted back to the present using appropriate discount rates. The possibility of different discount rates for each class of equity should be considered.

06 Additional adjustments

Any additional adjustments such as application of relevant discounts (for control or marketability) must be considered in the analysis.

The Case for PWERM

Factors in favor of the PWERM are:

- It is a forward-looking concept which takes into account future possibilities and outcomes.
- It is relatively more transparent than the OPM as each outcome is explicitly defined.
- The method explicitly considers the rights and preferences accorded to each of the class of shares.

Limitation of PWERM

Generally cited limitations of the PWERM include:

- The PWERM is ridden with multiple assumptions about possible future outcomes which are practically unknown as at the valuation date. This makes the method more suitable for companies which are nearing an liquidity event.
- Consideration of multiple future outcomes increases the complexity of the process and consequently the cost involved in the same.
- The PWERM considers only a discrete set of outcomes rather than a full distribution of outcomes as considered in the OPM. Thus, the PWERM is not appropriate for valuing option like payoffs like common stock options, profit interests or warrants.

When is PWERM best suitable?

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CURRENT VALUE METHOD

The CVM assumes immediate liquidation/conversion of each of the classes of equity at the “current value” of the business. The allocation process of CVM is relatively simpler than its counterparts. The underlying assumption of the CVM is an immediate sale of the entity. Value is allocated to various classes of equity based on higher of their liquidation preference and conversion values. It is pertinent to note that the equity value that is allocated to the classes of equity is the equity value as at the current date and not some future date like in OPM and PWERM.

The Case for CVM

Evidently, the benefit of CVM lies in its simplicity and ease of application. Unlike the other two methods considered until now i.e. OPM and PWERM, CVM makes a simplistic assumption of immediate liquidation of the company.

Limitation of CVM

On the face of it, the primary disadvantage of the CVM is that it is not forward looking. It fails to account for any possible increase or decrease in the value of the company. This limitation makes the CVM suitable only in limited circumstances as discussed in the section below.

When is CVM best suitable?

Per the task force, the CVM is suitable in the following two circumstances:

- When the liquidation or dissolution of the company is imminent and its ability to operate as a going concern is practically impossible.
- Another instance where the CVM is assumed to be suitable is that the entity is in its preliminary stage of development without any material progress having been made and any significant equity value created above the liquidation preference of the preferred shares of the company. CVM can be applied to this entity only when there is no reasonable basis for estimating the amount and timing of equity financing that the company will receive in the future. An example of an entity would be an early-stage company mainly funded by family and friends. The task force recommends that once an entity has received arm's length financing with one or more sophisticated financial investors, OPM or PWERM provides a more reliable indicative value of equity.

HYBRID METHODS

As mentioned in the section discussing PWERM, the hybrid method of allocation of value is a hybrid between OPM and PWERM. An illustration where the hybrid method of allocation is applicable is:

- Company A has a 60% chance of an IPO in the next 9 months. If the IPO is not successful, the company is likely to remain private and continue operations for another 3 years without the likelihood of another liquidity event occurring. On application of PWERM, 2 outcomes are i.) IPO and ii) liquidity event after 3 years.
 - Under the IPO scenario, the value of the equity shares can be determined based on the pricing and the timing of the IPO.
 - In the liquidity event scenario, the equity value can be allocated to the various classes of shares using the OPM.

Each of the methods discussed in the newsletter series has its own benefits and limitations. Any one method cannot be singled and claimed to be meritorious over the other. In common practice, the OPM and PWERM are widely used and sometimes as a combination (hybrid). Needless to say, selection of a methodology must be based on facts of the case and the complexity of the structures involved.



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