



Valuation of Interests in Private Assets

Private Assets Valuation

Alongside providing innovative and robust cash flow forecasting analytics, Aspequity offers related services that address the need for valuation of private interests. We have developed a proprietary model for valuation of private assets called EXPLO (Expected Profit Loss) While following closely the guidelines of the governing bodies in the industry, our methodology is unique so that it delivers superior results at unparalleled precision and speed.

According to all three main industry bodies with authoritative opinion on the investment valuations – the American Institute of Chartered Public Accountants (AICPIA), the Chartered Financial Analyst Institute, and the International Private Equity Board (IPEV), there are three approaches to valuing interests in private companies and their portfolios. The first one is the “income approach” which encompasses a variety of methods that focus on deriving an average representation of the discounted cash flows from the investment as a measure of fair value. The second one is the “market comparables”, or “relative” approach, which focuses on key financial ratios of the entity in which the investment is a claim. This approach is based on the assumption that these ratios, relating the fair value to certain financial statement metrics, will remain approximately constant across the set of companies in the same industry, and with the same leverage and other characteristics that define their risk and growth potential. The third approach is the “cost” or “asset” method which focuses on the disposition value of the asset at the present moment rather than directly focusing on its future earning potential - as such it reflects an immediate liquidation, rather than going-concern valuation views.

In particular, the approaches under the AICPA guidelines that address the highest complexity of valuation circumstances are the “certainty equivalent” and the “scenario probability weighted” methods. Both of them are categorized under the “income approach” as they use projected discounted cash flows to the present moment as a measure of fair value. The AICPA recognizes the varieties in their application and gives flexibility to their implementation, individually, or in combination, as long as the chosen approach conforms to the principles that give rise to the fundamental approaches.

It is specifically this category of valuation methods that is implemented by Aspequity in our EXPLO valuation model. It is because of their ability to accommodate complex structures, claims, waterfall models, and LP and GP investor circumstances that made them our preferred choice. Complex valuation frameworks can accommodate both simple and complex circumstances, but simple frameworks can accommodate only simple circumstances.

There are several features that make the EXPLO valuation model unique. First, the specific implementation adds unparalleled precision, efficiency, and robustness using proprietary simulation algorithms. The cash flow scenarios generated in a multiperiod setting offer a solution that converges over 10^{21} cashflow distinct paths per investment in the span of seconds. This is far beyond the capability of any existing competitive product, where the typical precision of Monte Carlo simulations is limited to the range $10^3 - 10^6$ cash flow paths, which, in addition, take significantly more time.

The second distinctive feature of our model is the reliance on our award-winning research work that defines a utility function to derive the risk aversion and the risk premium used in valuation. The utility function is the one used in the research paper *Optimal Deal Flow for Illiquid Assets (ODFI)*¹. The ODFI approach focuses exclusively on the basic idea that investors like gains and dislike losses. From that perspective, popular techniques like the “mean-variance” utility function that prescribes a risk-adjusted discount rate, and by extension discount rate models like CAPM and APT, do not reflect that outcomes above the average may be asymmetric with outcomes below the average. This is the actual case for most private and illiquid investments, as our work demonstrates (please see Appendix A). The utility function that underlies our valuation approach is well equipped to handle these challenges. In addition, it further considers the so called “moments of the distribution” not around the average outcome but around a zero-profit outcome. This is the reference point that accounts for *actual* rather than *mean relative* gains and losses. In the language of statistical distributions: investors like positive and high-valued odd moments around zero – mean and skew, and dislike high-valued even moments – variance and kurtosis.

It can be demonstrated that ODFI transforms the expected loss in one of three alternative but equivalent risk aversion metrics that directly apply to one of the approaches prescribed by AICPA, CFA, and IPEV. First, the penalty that the utility function describes directly translates into an adjustment of the probability distribution to act as “risk-neutral”, so that the expected return from taking into consideration all projected scenarios is equated with the risk-free rate. Clearly the probability distribution, as adjusted, is not the real-world probability distribution, but what it accomplishes is finding the break-even price where the investor is indifferent between investing in a risky vs. a risk-free asset. This framework is well familiar from the practice of investment derivative pricing and often labeled, including by the AICPA, as the “certainty-equivalent” approach.

AICPA: “This process involves developing the framework of the future scenarios... and then calibrating the current equity values and probabilities for each scenario such that value for the most recent financing equals the amount paid.”

Likewise, the same premium that transforms the probability distribution into a “risk-neutral” one, can be expressed as a premium to the discount rate itself, that gets applied to all probability-weighted scenarios. As noted, both the certainty-equivalent and the probability weighted scenarios methods subscribe to the “income approach” family, as defined by AICPA. What makes this method even more intuitive for interpretation is simply taking the discount rate approach one step further. In short, it can be shown the EXPLO approach can also be expressed as “market comparables” type of valuation method. We just need to recognize that saying that e.g. an EBITDA to EV multiple remains approximately constant across the set of companies with the same characteristics that define their risk and growth potential, is essentially equivalent to saying that the inverse of that ratio also remains constant. Considering a perpetuity value calculation in which this inverse ratio figures, this statement is equivalent to the assertion that the difference between the discount rate and the growth rate will also remain constant. In other words, the EV to EBITDA multiple defines a level of risk aversion that, through

¹ Belev et al., Real Estate Finance Winter 2017. Article won the Best Practitioner Research Award of the American Real Estate Society in 2015.

the discount rate, can be directly an input to, or an output from the ODFI valuation framework. This essentially means that the chosen valuation method makes mathematically equivalent all generally accepted forward looking valuation approaches, which offers a high degree of support and confidence in the conceptual design and practical application of the Aspequity model.

The third feature that is specific to the EXPLO valuation model is that it explicitly takes into consideration the degree of diversification of a portfolio of private assets, whether this is a private company or project, a single private limited partnership, or a fund of funds. Clearly having many different business lines in the same company, many deals in one fund, and many different funds with distinct cash flow schedules and payoff patterns under the same portfolio will compress the probability ranges of future outcomes, thus limiting the potential of adverse payoffs and adding [fair] value to the investment. We capture these elements of cashflow volatility, correlation, and diversification by using a bespoke risk models for the underlying asset – equity, debt, real assets, natural resources, etc. - sourced from our partnership with the recognized thought leader vendor in the commercial risk model space, Northfield Information Services.

AICPA: “Higher diversification leads to lower volatility. In contrast, for an early-stage company with only one product, the company’s overall performance is driven by the success or failure of that single product. Therefore, it is more appropriate to select guideline companies that may not be direct competitors but that are more similar in size and level of diversification.”

In addition to the above considerations, the guideline documents from the three organizations point to some additional important aspects of the analysis, which Aspequity takes into account as part of its practice.

- The pricing process, regardless of the underlying approach, should be calibrated (the discount rate, the multiple, or risk aversion) to the last transacted trade pertaining to the particular type of interest in the private entity (e.g. share class). If such a trade is not available from the reasonably recent past, a trade from a similar share class should be used instead, as long as its features, like optionality and special rights, do not make for a markedly different type of instrument. If this approach is taken, the value of these features should be reasonably accounted and thus used in an adjustment that will lead to the fair value of the type of share of interest. Rule-of-thumb adjustments to the discount rate, multiple, or risk aversion based on trades remote in time and type of the asset under consideration should not be used. Our EXPLO valuation methodology specifically uses the most recent relevant transaction to derive the risk aversion parameters of the investor, and avoids any ad-hoc adjustments completely, by constructing a rigorous valuation calculation.

AICPA: “Discount the expected equity value allocated to each share class to present value using a risk-adjusted discount rate... The discount rates would typically be calibrated to the most recent round of financing so that the selected probabilities and discount rates are internally consistent.”

- Strategic and special situation premiums on previously realized transactions should not be included in a latest round valuation when the prospective counterparty of a private interest transaction is generally anonymous at the time of the valuation, or uncertain, even if an offer has been made. The reason is that the synergies warranting such premiums only apply to specific entities and cases and not to the broad market. While the EXPLO methodology allows the use of non-transacted and “offer” prices for e.g. “what-if” analysis, we encourage the user to use only arms-length transacted prices as the basis of calibration in order to derive fair value.

- The valuation analysis should be done from the perspective of the party that is considering or holding the asset - i.e. factors of consideration in this respect will be circumstances and rights like certain warrants that will be attached to the investment, specific trigger and waterfall implications to the cap table that impact directly or indirectly the investor making the investment, or asset management fees and carried interest that needs to be paid by the investor. In accordance to this principle, EXPLO captures both the investor specific projected cash flows as well as risk aversion when performing the valuation calculation.

AICPA: “The expected shareholder value under each outcome is discounted back to the valuation date using appropriate discount rates. The fund should consider whether different discount rates should be used for each shareholder class, considering the relative risk of each class.”

This list is by no means meant to be exhaustive, but rather to draw attention to a certain general set of facts and circumstances that underpin any reasonable effort to derive fair value of an interest in a private investment vehicle.

In addition to the above, there are some time-tried principles that point to the best industry practices. We include them here to state our beliefs, assumptions, and principles embedded in the EXPLO valuation model implementation. Whether these offer a broader perspective and have relevance to their specific investment process, we leave up to the reader.

- The valuation approach should not be a “black box”, but should offer an identifiable relationship between the inputs and outputs, and, moreover, have the flexibility to find the sensitivity of the output over a range of input values, and provide the capability for what-if analysis and stress tests.
- It should offer a clear and intuitive connection between the valuation of individual deals held by the fund and the valuation of the fund itself, and where the parts of the whole do not add to the total, account for the factors that might make for the difference – diversification, carried interest, etc.
- The valuation approach should be based on an intuitive and robust underlying cash flow model that takes into consideration the multi-period dynamics of the investment: the “J-curve” of cumulative cash flows, distinction between arithmetic and compound (geometric returns) and the volatility of compound returns.

In summary, we should note that the fair value of an asset is at the center of all aspects of the investment analysis related to it, and, by itself, a metric that embeds all the elements of projected performance about which investors care. While, at a minimum, it informs about the amount of money for which the investment can be exchanged today, it concisely incorporates the asset’s possible financial outcome scenarios as filtered through the prism of the investor’s risk tolerance.

Therefore, we have implemented an extensive and robust set of forward-looking performance metrics as the principal inputs to our valuation model, which assures that the approach has the right ingredients to meet the needs of the marketplace. It is our unwavering belief, as strongly supported by the expert group opinion in the industry, that this approach is both sufficiently rigorous as well as transparent, as to give the investor confidence that they are capturing the asset’s fair value in the absence of a recent arm’s length transaction, which is the usual case in the private asset investment space.

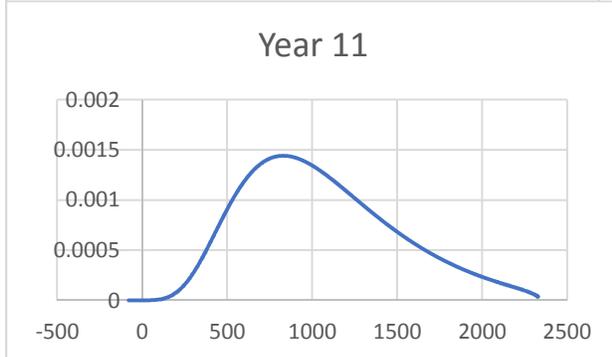
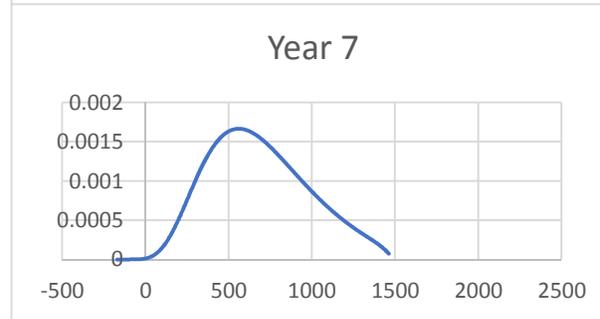
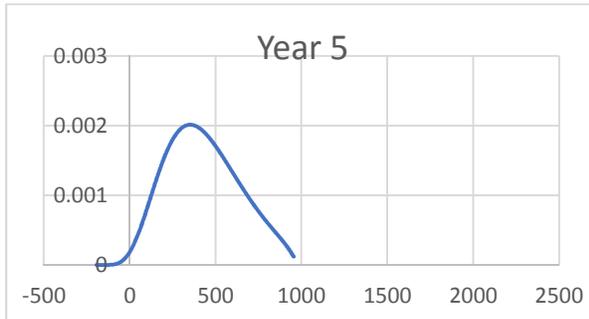
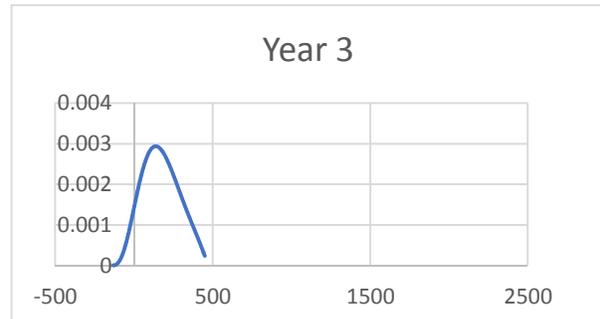
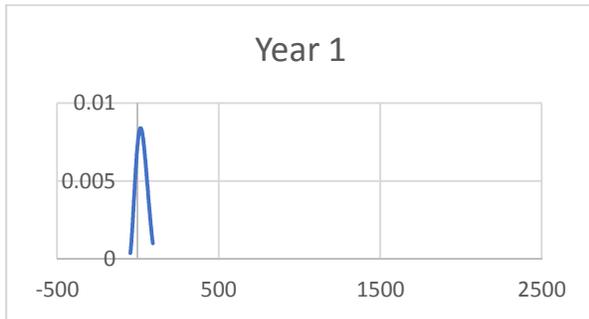
Contacts

Please contact us for a demo and to find out more at info@aspequity.com

Appendix A

Evolution of the Cumulative Value Distribution of a Sample Private Equity Fund

The simulation of the cumulative value outcomes of a fund over different horizons demonstrates how the probability distribution becomes increasingly asymmetric and non-normal as the fund nears maturity.



Appendix B

Sample output from the EXPLO valuation model

