

# Managing valuation risk : challenges ahead

*In changing volatility markets, valuation risk is still a major concern for the Risk Manager.*

**S**ix months after the official kick-off of AIFMD (Alternative Investment Fund Management Directive) in Luxembourg, how are we doing with regards to valuation risk? «Valuation of the assets under management is very important for alternative investment funds (AIFs) both for complying with the requirements for certification as an alternative investment fund manager (AIFM) and for the daily funds operations, including effective management of the market risk», says Stefan Mittelbach, Managing Director at abraxas GmbH.

Most management companies in Luxembourg carefully apply processes for independent valuation of the assets under management. Whether they delegate valuation and fund accounting to a qualified third party administrator, or they perform valuation in-house, they all have processes in place, and all assets have a price at valuation date.

Concerning Alternative funds falling under the AIFMD, often following investment strategies based on more complex and less liquid investments, the exercise is sometimes tough. However, thanks to the low valuation frequency, pricing seems acceptable using the human resources in place. As a result, can we consider that thanks to the valuation processes in place, the concerns regarding ensuring proper management of valuation risk are behind us?

Valuation risk can be defined as the risk that the price used for an asset deviates from its fair value over time. Much more sophisticated than mere pricing (i.e. using for valuation a transaction price that is only valid at transaction time), most valuation techniques are based on models. As the regulation underlines, valuation models need to be selected among the generally accepted models. Once selected for asset valuation, the model is back-tested against a past period, to ensure fitting. Then it is used for future valuations.

What is the risk in doing this? «Model selection should not be based on past experience only», warns Alan Picone, Managing Director at Kinetic Partners Management Company Luxembourg. He explains: «Consider the Black & Scholes model for instance, usually admitted for pricing currency options. This model uses a normal distribution which gives very good results under ... normal market conditions! However, should there be an implicit volatility hit at any time, the model valuation would inevitably deviate from the option actual value.»

As a result, management companies should not be resting in their comfort zone when it comes to managing valuation risk. Continuously ensuring that valuation models in place are still relevant should be part of their daily concerns. However, this is easier said than done.

«Valuation should be performed on a timely manner, to dynamically respond to the ever-changing market conditions», emphasizes Stefan Mittelbach, «the methods used should enable systematic, regular and cost-effective valuation:

- Systematic means solid, appropriate and generally accepted methods ;
- Regular assessments should be carried out within short intervals to ensure appropriate reaction to critical situations ;
- Cost-effective means, in particular, that the cost for market-data providers and necessary resources must be acceptable.»

«The AIFM then faces the dilemma of finding a way that covers the regulatory requirement with regards to valuation risk management in changing market conditions, while maintaining the costs to a sustainable level», summarizes Stefan Mittelbach.

How can management companies reach this level in managing valuation risk? «While the best valuation models are developed using experts' experience», explains Alan Picone, «they should not be based on past information only. Valuation models that would work on past data and/ or on normal market conditions have been widely used, even after the subprimes crisis. By keeping using them, we keep a looming systemic risk, as the next hit will again undergo a "jump diffusion"» Alan Picone illustrates this as follows: «just like in the case of an earthquake, the main hit is followed by waves of replica, that can also be devastating. In the case of asset management, it is particularly dangerous as the valuation would deviate further and further from reality over time, as the liquidity of the assets under management would change, resulting from the crisis hit».

Safeguarding the world of finance against systemic risk requires focusing on valuation risk, and therefore in-depth rethinking the valuation process, taking into account each and every factor that would impact the volatility and liquidity of the

assets under management. This presents a substantial challenge for AIFMs, eager to contain costs.

«Meaningful up-to-date information for such illiquid assets (balance sheets, appraisals) is rare and should be interpreted before being used for calculation of key values», considers Stefan Mittelbach. «Obviously, the used figures depend on the asset type. The quality of valuation risk management decreases if the information is too old. Whenever possible, the best available information (e.g. the yearly balance sheet) must be used. Risk relevant data, which is related to the economic environment, is partially daily (interest rates, foreign exchange rates) or monthly updated (inflation rate).»

Experts in Fair Value comities would be using all these data to make decisions on the best price to use, comparing the results from different valuation models. Expert intelligence is using cognitive constructs to challenge the pricing models. However, making such arbitrage takes time. «When trying to replicate experts decision process, methods from artificial intelligence, like 'fuzzy theory', have gained momentum», notices Stefan

Mittelbach. He explains: «Fuzzy theory has entered into our daily lives, unnoticed by most of us. Fuzzy methods control important functions of everyday life goods like cars and smartphones. In contrast to Boolean logic, that only defines whether an element belongs to a set or not, fuzzy logic defines a value that describes to what degree the element belongs to the set. This approach replicates the decision-making process of an expert», which is seldom black or white, but rather a grayish shade influenced by a complex combination of factors. «A second important factor in the human decision process is the inclusion of compromises – the compensation of strengths and weakness from various influencing factors. The fuzzy theory provides 'compensatory operators' that replicate this typical human decision-making approach.»

As all theories and modeling should pass the 'back-testing' test of real life application, how successful are artificial intelligence, and fuzzy theory in particular, when applied to price challenging in an attempt to mitigate valuation risk? «The system makes decisions within a very short time, whereas a human expert would need hours or days. Even in

extreme market conditions (e.g. the Icelandic financial crisis), the system delivered very good results», reports Stefan Mittelbach, based on an experiment on valuation of OTC –traded bonds.

«A human expert and the fuzzy system agreed in more than 95% of their decisions. A detailed analysis in cases of disagreements showed that the human expert had to revise his or her opinion in most cases. Due to time pressures, the expert was unable to take into account the complete spectrum of information. While the system considers all decision factors completely and systematically, it is also free from unwanted external factors such as time pressures and mood, which impact the human decision-making process.»

When preparing the management companies for managing the most predominant risks of the current financial world, i.e. liquidity risk, valuation risk and model risk, fuzzy systems should be considered as a solution for cost-effective, systematic and efficient assistance to Risk Manager.

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