Independent Price Verification

At each month-end, the Valuation Product Control Group (VPC) performs an independent fair valuation of all portfolios within Trading Products. This process results in independent price verification adjustments (IPV) and valuation adjustments (VA). IPV reflect the valuation difference between the line of business (LOB) view of valuation and the independent VPC view. VA's are adjustments used to achieve fair value and include Close-Out, Uncertainty, Liquidity, Model Risk, and Administrative.

Value at Risk (VaR) is computed using risk sensitivities from the official risk systems. Given that the IPV and VA are applied outside the system, consideration must be paid to what impact these adjustments may have, if any, to these risk sensitivities. For example, a large IPV may signal a material difference between the market data in the source system and the independent market data. The source system data is used to compute the risk sensitivities for VaR. Differences in these market data may result in changes in risk sensitivities, particularly for portfolios that exhibit non-linearity, where the risk sensitivity itself changes with changes in market data.

VPC holds a month-end meeting to review all IPV/VA with representatives from the line of business (LOB), Capital Markets Finance, Chief Accountant's Group, and Risk Oversight. A report is distributed outlining the IPV and VA balances and month over month changes. Detailed reports for each LOB are also available.

VPC will identify material IPV and VA balance for each portfolio (as defined by a unique limit letter) that have a potential impact on VaR. Materiality will be set at total IPV adjustment or total VA greater than $1MM per portfolio. Note that individual rather than net IPV and VA balances should be reviewed as there may be offsetting effects within a portfolio.

Material IPV/VA balances will be assessed with respect to potential impact on the risk sensitivities of the corresponding portfolio. The IPV/Valuation Adjustment Review Stream is tasked with this responsibility.

The origin of IPV balances can generally be ascribed to two principle effects. The first effect originates from a difference between the existing source system market data and the independent VPC market data. The second effect originates from constraints in the source system valuation functionality. These constraints are typically addressed through out-of-system calculations performed by VPC.

Differences in market data can change the risk sensitivities, particularly for the non-linear books. For exotic derivative desks and options desks, calculating new risk sensitivities using VPC market data is an important consideration given the inherent non-linearity existing in these portfolios. For more linear books, the effect of market data differences on risk sensitivities will not be as pronounced. VPC/Risk Oversight will compute new risk sensitivities for material IPV balances.

In certain cases, fair valuation of financial instruments may require capabilities that are not present in the source system valuation models or valuation environment. In these cases, VPC will use existing vetted models outside the source systems to compute fair value. For material IPV adjustments, the factor(s) will be assessed with respect to the implications on risk sensitivities.

Close-Out reflects the fact that transactions should be marked to bid or offer depending on whether the LOB is long or short in order to achieve fair value. Source system market data is generally input at mid-market and the risk sensitivities derived from mid-market data are appropriate for computation of VaR.

Uncertainty provides for uncertainty in the market data input. These adjustments are quite specific and generally pertain to unobservable parameters such as price-price implied correlation. To the extent that the VA is material, new risk sensitivities will need to be computed.

Liquidity provides for the underlying market liquidity to achieve fair value. This VA is not common and will need to be assessed on a case by case basis.

Model Risk provides for model limitations and will have to be assessed on a case by case basis

Administrative does not have implications for market data or market risk.

Where IPV/VA adjustments have been deemed material and therefore new risk sensitivities are required, VPC and Risk Oversight will work to compute these sensitivities. With respect to material IPV balances originating from market data differences, this will generally involve using the existing source system to compute risk sensitivities with VPC data. For source system functionality constraints, this will involve using the valuation platform used by VPC to compute the risk sensitivities. Given that risk sensitivities are computed by perturbing market data, this can be achieved by performing repeated valuations using the platform. For material VA balances, new risk sensitivities will be obtained from either the source system or the VPC valuation platform, whichever is appropriate.

Once new risk sensitivities are computed for a given portfolio, these will be compared to existing risk sensitivities used to compute the original LOB level VaR figure. Where risk sensitivity differences exist with magnitude greater than 10%, Risk Oversight will work with the Risk Methodologies group using their vetted VaR prototype to compute potential VaR impact at the portfolio and top of the house level. The prototype allows for this kind of assessment in an expedient manner without having to enhance the risk files in the official VaR process. If the VaR change at the LOB node level is greater than a threshold of 15% and/or the impact at the top of the house is greater than 5%, the immediate implementation of a proxy trade will be initiated.

Items identified through the assessment in the prior section will require proxy trades to represent the enhanced risk exposure in the official VaR system. As discussed, for market data differences, VPC market data will be passed to the source system and new risk sensitivities will be computed. The observed change in the risk sensitivities between the new and old sensitivities will then be recorded and used to construct a new proxy trade. There is formal proxy trade governance and procedures that will be followed to implement the proxy. Once the proxy is implemented, it will be updated monthly assuming the associated IPV balance remains material.

For adjustments driven by source system constraints, the solution will depend on the nature of the limitation. Generally speaking, the solution will be to book a proxy trade in the source system to reflect the omitted effect. This would be booked and maintained by the LOB with verification by Risk Oversight/VPC. A good example of this is the proxy trades booked to represent the effect of OIS discounting for CSA-based interest rate swaps. As part of the proxy trade governance requirements, a memo detailing the nature of the proxy and roles and responsibilities will be created.

If the approach above is not feasible or practical, the VPC IPV platform will be used to provide the risk sensitivities. Specifically, the platform will be used to revalue the portfolio via a perturbation in the inputs, thereby providing the desired risk sensitivities. These sensitivities will then be recorded and used to construct the proxy trade.

Reference:

https://finpricing.com/lib/IrCurveIntroduction.html