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INFORMATION SERVICES VALUATION CHANGES WITH ITaC

The JSE determines and publishes the closing price for all instruments listed on the Equity Derivative Market and Currency Derivative Market. Due to the illiquid nature of many derivative contracts, these instruments are typically priced using a mark-to-model process, utilising a range of input prices and calculation steps. As part of the ITaC implementation, the internal systems used by the JSE to collect input data, perform intermediate calculations, and finalise closing prices, have been replaced with one central core system, namely the Valuations Input System (VIS). While this has not introduced any fundamental changes to the mark-to-model methodology, there are some changes that are being introduced by the new systems, broadly categorised as:

- Changes to intermediate calculations, typically based on better conventions. This includes algorithms such as the interpolation and standardisation of volatility surfaces.
- More consistent application of inputs across the two markets. For example, using a consistent set of currency fixings and timings across the two markets.
- Changes to rounding precision on inputs and intermediate calculations.

Based on a comparison of daily production prices versus ITaC early production prices, the impact of the alignments are minimal in the context of typical daily movements and position sizes. However, the details of known differences are provided below to assist clients that are re-calculating JSE prices using a parallel verification process.

Volatility Surfaces

- Volatility surfaces in ITaC are modelled on a term-to-maturity basis rather than a fixed expiry date. As such, an instrument linked to a particular volatility surface will require interpolation across the two nearest term-to-maturity skews, rather than having a single dedicated skew for that instrument. This relates particularly to options on index futures.
- For options with extreme levels of moneyness, the current extrapolation convention applied to volatility surfaces is a linear extrapolation using the last two points of the curve. In ITaC, this changes to a flat extrapolation using only the most extreme curve point.
- An enhancement to the interpolation of volatility for options with a relatively high level of moneyness (typically 120% to 140%) will result in a more internally consistent determination of volatility levels for Currency Options.

Service:

Equity Market
JSE Derivatives Markets

- Equity Derivatives Market
- Currency Derivatives Market

Environment(s):

Production

Additional Information:

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Standardisation

- International equity quanto futures are currently priced using a dividend yield assumption. From ITaC go-live, these instruments will be priced using a discrete dividend projection model, aligned with the methodology used for vanilla IDX contracts.
- All IDX contracts are currently priced using a spot exchange rate obtained from Bloomberg at 17:15. This is not aligned with the expiry methodology, which utilises the standard 17:00 Currency Derivative Market fixing derived from Refinitiv data. From ITaC go-live, the daily pricing of these contracts will use the standard Currency Derivative Market fixing derived from Refinitiv data. There is no change to the expiry price determination, which already uses this source.
- The dividend contracts for a small number of single stock futures based on an unbundling basket are currently priced at zero even when dividend projections may be available. From ITaC go-live, the new dividend neutral contract will be priced consistently for all single stock futures, removing this anomaly.
- Suspended derivative contracts are currently priced at a static level with no daily movement. From ITaC go-live, where the underlying spot instrument is not suspended, the derivative price will recalculate daily based on the prevailing underlying spot price.
- Rounding precision for all exotic options and futures standardised to two decimal places.

Please note that identified impacts are subject to dependencies on the underlying market movement and hence may differ day-to-day. The JSE will be engaging with members around any envisaged, significant impacts to Variation Margin moves (percentage and Rand value) on a granular positions level.

Should clients have any queries please contact Valuations@jse.co.za